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BENIGN AND MALIGNANT TUMORS OF THE VULVA

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The skin and accessory cutaneous structures of the vulva occupy an important relationship to the vulval integument of the human female. The generally benign character of simple tumors developing in these structures has created little respect for their occasional malignant propensities. The design of metaplasia and malignant change in these innocent tumors is rarely emphasized. All too often they are described merely as small vulvar lesions when as a matter of fact they are often the key to a better understanding of the development and behavior of malignant growths in this area. My associates and I believe that a better general understanding of benign tumors of the vulva is an important aspect of preventive gynecology and is essential for the proper insight and control of vulvar cancer.

BENIGN TUMORS OF THE VULVA

Of Connective Tissue Origin.—In the group of benign tumors of connective tissue origin are the fibromas, leiomyofibromas, leiomyomas and lipomas. The rarer hemangiomas, lymphangiomas, neuromas and enchondromas are mentioned merely to complete the list.

The fibromas and leiomyofibromas of the vulva are not common. There were but nine recorded cases in thirty-nine years in the files of the University Hospital. The fibromas, leiomyofibromas and leiomyomas vary in size from 0.5 cm. to huge pedunculated masses. They are discrete and moderately firm to palpation and the overlying skin tends to be thick. The leiomyomas are notably soft to palpation and may show ulceration and infection in certain areas. They may arise as tumors of the round ligament or they may initiate primarily in the vulva. Fibromas and fibroleiomyomas originating in the vulva reveal a predominance of fibrous tissue, while those arising from the round ligaments and the long pedicled vulval tumors usually have an increased amount of smooth muscle tissue. Taussig¹ quotes Leonard as finding 22.5 per cent of these tumors undergoing sarcomatous changes. At the University Hospital we found these changes in one of the nine cases—an incidence of 11 per cent.

The symptoms caused by fibromas and fibroleiomyomas of the vulva are due chiefly to the weight and location of the mass. They may cause distress on loco-

motion, and mild urethral irritation may occur if the mass pulls or involves the urethra. Likewise the weight may cause urinary incontinence or increased frequency by interfering with the sphincter mechanism. The treatment is surgical extirpation. The tissue removed should always be examined by a competent pathologist.

Lipomas of the vulva are less common than fibromas. There were no recorded cases at the University Hospital. Lipomas of the vulva are prone to be located more laterally on the labia majora or in the genitocrural folds. They are seen also on the medial side of the upper part of the thigh or in the gluteal areas. Taussig¹ describes the smaller ones as "polyp-like," while the larger ones are "apron-like." Lipomas are lobulated and soft and have broader bases than fibromas. There is no danger of malignant change, and simple surgical removal is the treatment.

Hemangiomas of the vulva are reported as rare. Three cases have been recorded at the Gynecology Clinic of the University Hospital in the past ten years, an approximate ratio of 1 case to each 19,000 pelvic examinations. These tumors present varied appearances dependent entirely on their predominating type of tissue present. They may vary from red to brown and from maculopapular to small lobulated soft tumors. The more complex variety, such as the endotheliomas and angiodromas, appear as slow growing, semispherical tumors. The more complex the pathologic pattern, the greater the danger of invasion. Improper treatment may lead to the development of angiosarcomatous change. Our third case, a hemangioma-endothelioma cylindromatous, presented a rounded semifirm mass the size of a small orange on the left labium majus. The treatment is surgical removal of the tumor, together with ample surrounding tissue.

The lymphangiomas, myxomas, neuromas, osteomas and enchondromas of the vulva are rare and complex tumors. Those interested in these rare tumors will find adequate descriptions in the various gynecologic-pathologic compendiums.

Of Epithelial Origin.—Benign tumors of the vulva of epithelial origin include true papillomas and those papillomas commonly termed condylomas, arising from residual pathologic irritation of subacute or chronic infections such as gonorrhea; hidradenomas or sweat-gland adenomas of the vulva; supernumerary vulval breast, which occasionally undergoes carcinomatous change; endometriosis, and the many varieties of cystic tumors of the vulva.

The condylomata acuminata are usually multiple papillated excrescences. They may vary from the size of a wheat seed to that of a large orange. They may be filiform, multiple, widespread or grouped cauliflower-like about the labia majora or perineum or in the genitocrural folds. The larger ones become ulcerated, may

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1. Taussig, F. J.: *Obstetrics and Gynecology*, edited by A. H. Curtis, Philadelphia, W. B. Saunders Company 3: 586 (chap. 88) 1933.

ed easily and, when secondarily infected, become exceedingly painful. Their history is one of much more rapid evolution than those of the senile type. In pregnancy they have a tendency to increase and multiply in size and number.

Small tumors of this kind can be treated with caustic ratolytic drugs such as silver nitrate, trichloroacetic

therapy. Because these papillomas may undergo malignant change, tissue removed should always be submitted for study by a competent pathologist.

Hidradenomas or sweat-gland adenomas of the vulva are unusual. We have been able to collect fifteen cases from the files at the University of Michigan. A detailed histopathologic report of these tumors will appear in a later publication.

The sweat-gland adenomas of the vulva are usually small, from pea to walnut size, single, generally unilateral and usually located in the labia majora or minora. The tumor is usually cystic but may be solid. These adenomas have been described as intracystic papillomas.²

The hidradenomas of the vulva are discrete and have definite, well circumscribed boundaries. They are freely movable over the underlying deeper tissues. The skin covering the small tumors is usually intact, although ulceration of the skin can occur. Its color does not differ from the surrounding tissue. Unless ulcerated and secondarily infected, or located on the mesial side of the introitus in such a manner as to cause dyspareunia, these adenomas produce no symptoms. The tumors usually are very slow growing, requiring from one to many years for their evolution. The majority are benign, although 27 per cent are distinctly locally invasive in character or possess potential ability to become malignant. The only treatment necessary is simple excision, which in most cases can be effected easily under local anesthesia. Because of their local invasive characteristics it is well to include ample tissue in the area of excision.

The vulval supernumerary breasts or persistent milk ridge breast tissue tumescences are most unusual. They are usually soft, spherical, semicystic masses, located in the interlabial fossae or medial side of the labium majus. During pregnancy they enlarge and behave similarly to other supernumerary breasts. Mengert³ reported an interesting example of bilateral tumors. Greene⁴ described such a tumor with adenocarcinomatous and epidermal carcinomatous changes. The treatment is surgical removal with subsequent pathologic examination of the tissue.

Endometrioma of the vulva is rare. In 1929 at the University Hospital a small endometrioma was removed from the mons pubis of a young woman. The tumor

acid or salicylic acid ointments, but the surrounding tissue should be protected with petrolatum. It may be necessary first to clean up an associated tinea infection or to use various drying agents to clear the contiguous dermatitis. The actual cautery is used by many dermatologists to care for the smaller lesions. If untreated and long neglected, condylomas may undergo malignant change. Such was the case with two Negro patients, one with neoplastic change in a papilloma of the genitocrural fold and the other with the same in a perineal papilloma.

True papillomas are usually found in older patients and more commonly in persons past the menopause. The senile papillomas of the vulva are usually well circumscribed and are raised wartlike slightly above the surface (fig. 2). They may be multiple or lobulated. Some are single pedicled, multilobulated tumors. The surrounding vulval skin often presents evidence of senile atrophy. Patients often report that these wartlike bodies have been present for years.

Among our patients, carcinoma was found to have originated in a senile papilloma in five instances, an incidence, based on the number of papillomas recorded in diagnoses, of 23 per cent. This incidence is undoubtedly high and probably does not truly represent the relationship, since many of the smaller papillomas were probably not recorded. Nevertheless, here exists a very real opportunity for prevention. This relationship should be recognized and all vulval papillomas should be treated as potential carcinomas. Surgical excision with ample removal of tissue near the base is the best

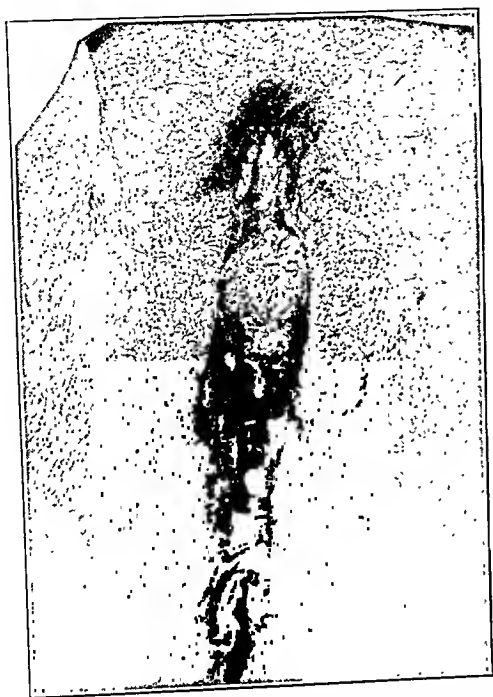


Fig. 1 (Mrs. M. O.).—Inoperable primary melanoblastoma of clitoris. Death occurred two weeks after this photograph from ruptured subcapsular hepatic metastases producing an extensive hemoperitoneum. Autopsy revealed extensive metastases.

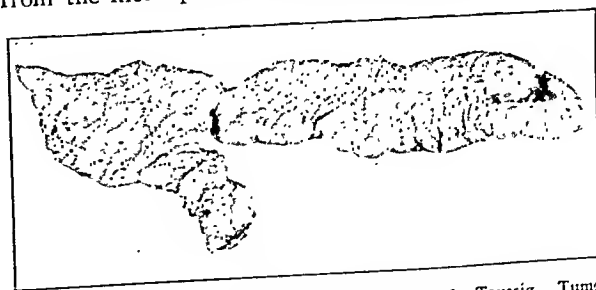


Fig. 2.—Carcinoma of the vulva, clinical stage 1, Taussig. Tumor from 1 to 3 cm. in average diameter. No palpable metastases. This case showed early carcinoma in a papilloma.

had been present for about two years and the history cited periodic swelling. A microscopic examination by our pathologist showed typical endometrium. Any such endometriomas can be removed surgically under local anesthesia.

2. Hoeck, Werner: *Zentralbl. f. Gynäk.* 50: 2757-2760 (Oct. 23) 1926.
3. Rolleston, H. D.: *Brit. J. Dermat.* 14: 83-86, 1902.
4. Mengert, W. F.: *Am. J. Obst. & Gynec.* 20: 891-892 (June) 1935.
5. Greene, H. F.: *Am. J. Obst. & Gynec.* 31: 660-663 (April) 1936.

The benign cystic tumors of the vulva are rather commonly found. Many systems or etiologic classifications are recorded in the literature. For practical clinical purposes we favor Taussig's suggestion based on cyst content: sebaceous cysts, serous cysts and mucous cysts.

Sebaceous cysts, also termed atheromas, may vary from the size of a pinhead to that of a hen's egg. When



Fig. 3.—Carcinoma of the vulva, clinical grade 2, Taussig. Tumor from 4 to 7 cm. in diameter. No palpable metastases.

the gland duct becomes occluded, the cystic cavity fills with inspissated cheesy sebaceous material. These cysts tend to be multiple and favor the mesial border of the labia majora or either side of the labia minora. Their color varies from yellowish to gray yellow. It is not uncommon for them to become secondarily infected. Dealy,⁵ although not specifically mentioning vulval sebaceous cysts, states that from 2 to 3 per cent become malignant. The symptoms, if any, are dependent on the size of the cyst and on whether or not it is infected. The surgical removal of these cysts or treatment by electrocautery is a simple office procedure.

The more common thin walled serous cysts are often found on the two upper quadrants of the vulva, especially in the labia minora. They vary from pea to plum size and tend to be single. Their etiology is of more interest to a gynecologic pathologist than to one who is clinically minded. Fourteen of this type were seen at the University Hospital in 1938, an incidence of one to each 357 pelvic examinations. Treatment of these cysts is removal.

Bartholin cysts, most common of the mucous variety, lead in frequency. One hundred and nine cases were seen at the Gynecology Clinic in 1938, an incidence of one to each forty-six pelvic examinations. It is of interest to note that only twenty-three cases (21 per cent) presented symptoms, and of these only fourteen (13 per cent) required treatment. The fact that only nineteen cases (17.5 per cent) of the entire group showed clinical evidence of gonorrhea of the lower genital tract or residual inflammatory disease of the pelvis suggests the possibility of other than gonorrheal origin. Treatment of symptom-producing Bartholin

cysts may be simple excision, enucleation of the cyst or aspiration of the cystic contents and obliteration of the cystic walls with escharotic chemicals.

MALIGNANT TUMORS OF THE VULVA

Sarcoma of the vulva is rare. It may develop in the vulvar end of the round ligament or may be primary in the vulva. Sarcomatous change may occur in angiomatous vulval tumors.⁶ Two cases of sarcoma of the vulva have been seen at the Gynecology Clinic of the University Hospital. Physicians in the state of Michigan have sent tissue from three other patients. One of our cases of sarcoma of the vulva has previously been reported by Morgan.⁷

The evolution of sarcoma of the vulva usually is rapid. The lesion is generally irregular, nodulated and covered with a thin layer of epidermis. It may resemble a fibroma of the vulva until ulceration and infiltration take place. Frank, quoted by Taussig,⁶ states that the lymphatic glands are rarely affected, thus differing from carcinoma and melanoma of the vulva, but our cases all showed involvement of the inguinal glands. The incidence is low, occurring in about one case in every 10,000 pelvic examinations at the University Hospital. Those originating in the vulva are not uncommonly designated fibrosarcomas.

Some pathologists describe fibrosarcomas of the vulva as tending to remain localized, but actually these tumors may undergo wide hematogenous spread, as evidenced by two of our more recent cases. Once beyond local control, these tumors metastasize rapidly to most parenchymatous organs of the body. One of our cases evidenced metastases to the scalp and frontal bone. Clinical experience clearly indicates that radical vulvar surgery is the most successful treatment.

Metastatic malignant tumors of the vulva are rare. The records of the University Hospital reveal three cases of adenocarcinoma of the vulva associated with adenocarcinoma of the fundus; two cases of vulvar metastasis from chorio-epithelioma and one case of melanoma of the cheek presented a vulval metastasis. Interestingly enough, in the past five years we have performed biopsies on vestibular nodules from two patients. Because of the neoplastic cell type, the pathologist advised a check on the lungs for the primary lesion, and a bronchogenic carcinoma was found in each instance.

A careful review of our records for the past thirty-nine years reveals but three cases of primary melanoma of the vulva, an approximate incidence of one case to each 125,000 pelvic examinations. These tumors are usually lobulated, bluish black pigmented new growths. They grow rapidly and metastasize very early to distant organs. There is early invasion to the lymph nodes.



Fig. 4.—Carcinoma of the vulva, clinical grade 3, Taussig. Ulcer over 7 cm. in diameter or deeper infiltration or palpable gland metastases.

6. Taussig, F. J.: *Amer. J. Obst. & Gynec.* 33: 1017-1026 (June) 1937.

7. Morgan, H. S.: *Am. J. Obst. & Gynec.* 15: 861 (June) 1928.

5. Dealy, F. N.: *Am. J. Surg.* 36: 132 (1937).

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Their relation to the pigmented blue-black moles is well known in other cutaneous areas and but little emphasized in the vulvar region. We have had the experience, on two occasions, of removing a small pigmented papillated mole, from the mons pubis in one case and the genitocrural fold in another case, only to have the pathologist report back "questionable early melanoblastoma, excision adequate but advise close observation." Emphasis on the proper care for these small pigmented moles would be excellent preventive medicine.

Two of the three melanomas of the vulva in our series were found to have their origin in the clitoris (fig. 1). While the treatment of this condition is surgical, it is important to remember that the primary growth may appear small and readily operable long after widespread metastasis has occurred. Consequently, x-ray examination of the chest, a very careful clinical history and a physical examination to rule out distant metastases should always be a part of the preoperative program. The prognosis is extremely poor, 100 per cent fatal in our series of three cases.

Basal cell carcinomas of the vulva are relatively rare. They appear as small indurated and ulcerated tumescences usually found on the labia majora. Six cases have been seen at the University Hospital. Three patients had rodent ulcers elsewhere on the skin of the body and in two cases there was more than one rodent ulcer on the vulva. Treatment is surgical extirpation. In the two cases followed for four and six years respectively there has been no recurrence of the vulval lesions.

Carcinoma of the vulva is the most common malignant neoplasm of the external female genitalia. In thirty-nine years at the University Hospital 201 separate cases were encountered; 128 cases proved by both biopsy and clinical examination were seen in the

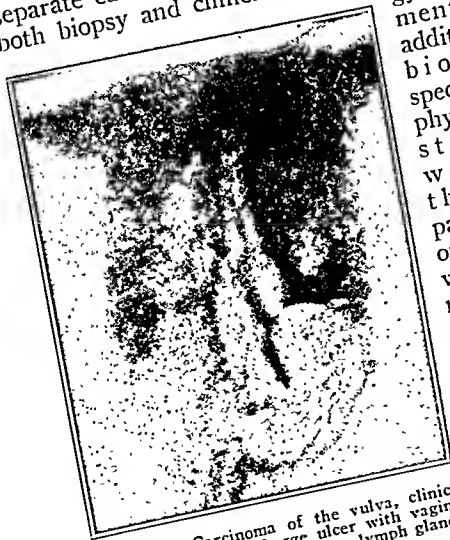


Fig. 5.—Carcinoma of the vulva, clinical group 4, Taussig. Large ulcer with vaginal involvement or large cancerous lymph glands.

gynecology department; seventy-six additional positive biopsy or tissue specimens sent by physicians in the state of Michigan were examined in the pathology department, and the other seven cases were seen and diagnosed clinically in the gynecology department. It is impossible to compare accurately the incidence of carcinoma of the vulva with other malignant conditions of the female generative tract; however, it closely approximates 4 per cent. In the definite control period from July 1, 1931, to Jan. 1, 1938, of 1,026 cases of carcinoma of the female generative system there were forty-four cases of carcinoma of the vulva, or a ratio of 1 to 24. The vulval cancer is primarily a tumor of senility. The greatest age incidence is in the sixth to the seventh decade. The average age in our group was 60.92 years, while the median age was 61.73 years. It is of interest

to note, in the light of Hall and Bagby's paper on "Carcinoma in the First Three Decades of Life,"⁸ that three of our 128 patients were 30 years or less in age. There were seven Negro women, one was a Tawa Indian woman and the remainder were members of the white race. Four of the seven Negro patients also had latent syphilis (fig. 5).

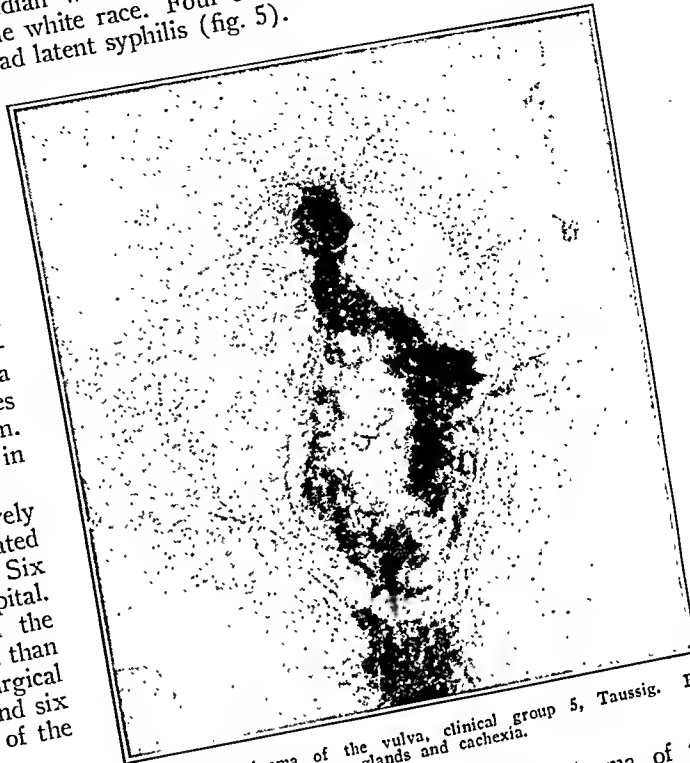


Fig. 6.—Carcinoma of the vulva, clinical group 5, Taussig. Far advanced with broken down glands and cachexia.

Taussig's five clinical stages of carcinoma of the vulva based on the size of the primary tumor and degree of involvement of the inguinal glands is the most practical. The 128 cases seen in the University Hospital were regrouped according to Taussig's classification (table 1). The presence of movable metastases of the inguinal gland, however, does not imply inoperability. Taussig⁹ operated on 70 per cent of his patients and in 63 per cent achieved five year arrests. Later figures⁹ revealed an absolute curability of 26 per cent, representing thirty of Taussig's sixty-seven treated patients. Figures 2, 3, 4, 5 and 6 illustrate each of these clinical types.

The average patient with carcinoma of the vulva procrastinates an amazing length of time before consulting a physician. The average patient seen at the University Hospital lost approximately fifty-six weeks, or thirteen months, before seeking treatment. Seventy-five per cent of our series fell into the last three stages of Taussig's clinical groupings (table 1). It is disheartening to review the many histories of patients treating themselves with "patent medicines" or receiving advice regarding treatment without examination.

The three cardinal symptoms of carcinoma of the vulva were pruritus (58 per cent), tenderness, soreness or actual pain (48 per cent) and "spotting" or irritating leukorrheal discharge (28 per cent). If one waits for the three principal signs of carcinoma of the vulva—tumor mass, ulceration or actual edema of one or both lower extremities—there is little hope for a

8. Hall, Norman, and Bagby, J. W.: Carcinoma in the First Three Decades of Life. J. A. M. A. 110: 203-206 (March 5) 1938.
9. Taussig, F. J.: Surg., Gynec. & Obst. 60: 477 (Feb. 15) 1935.

favorable prognosis. One fact stands out above all others in reviewing the symptoms of these patients—no patient with pruritus vulvae should be treated with medical nonchalance! To this warning might be added the admonition that the presence of any small tumor of the vulva, irrespective of the age of the patient, must be thoroughly examined and removed if carcinoma of the vulva is to be controlled.

At the University Hospital the treatment of carcinoma was based entirely on the principle of individualization. In a survey of treatment covering more than thirty-nine years, we have come to question seriously with McKelvey and McLennan¹⁰ the advisability of continuing to use multiple methods of treatment.

Simple resection of the vulva with superficial resection of the inguinal glands and incomplete vulval surgery with coagulation technic have been abandoned. For precancerous conditions a simple vulvectomy may suffice but such cases, especially in the younger age group, should be kept under close surveillance.

Treatment of carcinoma of the vulva entirely by radiation therapy, whether by radium, x-rays or a combination of the two, has been most disappointing. Plate's¹¹ experience is similar to ours. He had no survivals after five years. We had but one survival after five years among the twenty-nine patients treated entirely by irradiation. Schreiner and Wehr¹² were of the opinion that radical coagulation and highly filtered x-rays or radium to the lymph-bearing areas was applicable to a larger number of cases. It has been our experience that the addition of irradiation to operation is of little benefit. The type and thoroughness of operation appears to be the most important factor!

Under the admirable leadership of Basset and Tausig, adequate treatment based on anatomicopathologic knowledge of malignant growths peculiar to this area is undergoing rapid development. In short, extensive vulvar surgery with superficial and deep bilateral inguinal resection, commonly known as the Basset

after treatment, and of these only seven patients (5.45 per cent) are still living (table 2).

The observation that the number of five year arrests fall consistently into that group treated by surgery is convincing us that the better results are obtained by this method.

The control and prevention of carcinoma of the vulva rests squarely on two persons. The first is the patient herself, who should include an annual periodic pelvic examination with her once a year health check-up.

TABLE 2.—Treatment of Carcinoma of the Vulva: 128 Cases

	Num- ber of Cases	Num- ber Alive	Num- ber Dead	Num- ber Lost	No. of 5 Year Arrests	Per Cent
Surgery only.....	51*	15	23	13	8	7.4
Surgery and irradiation combined.....	27*	5	19	3	5	4.7
Irradiation only.....	29	2	24	3	1	0.9
Too advanced or refused.....	21	3	10	8	0	
Total.....	128	25	76	27	14	

* These two groups, seventy-eight patients, were treated by vulval surgery or by vulval surgery combined with irradiation. Because this group covers a period of thirty-nine years, including a large number of treatments consisting only of surgery, which would be considered inadequate at the present time, the number of five year arrests after treatment is obviously small.

This approach is the shortest and most successful prerequisite of any educational campaign against carcinoma. The second person to lend invaluable assistance to the prevention of carcinoma of the vulva is the local physician. Every family physician should be so imbued with preventive treatment that he will not fail those approaching him for complete periodic health examinations (pelvis always to be included). He should make it a point to examine every patient presenting herself with pruritus vulvae or other vulvar lesions.

SUMMARY

1. Metaplasia and malignant change in apparently innocuous vulvar tumors are inadequately emphasized. Papillomas, sebaceous cysts, pigmented moles, leiomyofibromas, vulvar breast tissue and sweat gland adenomas are some of the benign vulvar tumors which may, at a later date in a woman's life, degenerate to vulvar malignancy.

2. Treatment and care of the patient presenting herself with a vulvar cancer are tending to become more rational in the light of present anatomicopathologic knowledge of vulvar cancers. Vulvar surgery combined with resection of superficial and deep inguinal lymph nodes, the so-called Basset technic, with modifications as outlined by Tausig, continues to be the best treatment for carcinoma of the vulva.

By stressing periodic pelvic examinations, cancer educational programs may materially assist in preventing cancer of the vulva. By paying attention to simple lesions and the benign tumors of the vulva, the physician may prevent carcinoma of the vulva.

1014 Rose Avenue.

Hammer Toe.—This is a condition in which the proximal phalanx of a toe is extended while the second and distal phalanges are flexed, causing a claw-like appearance. The second toe is most often involved. The condition may be congenital or acquired. Congenital hammer toe usually affects the second toe; acquired hammer toe is practically always secondary to some other deformity, such as pes valgoplanus, or talipes arcuatus.—Hauser, Emil D. W.: Diseases of the Foot, Philadelphia, W. B. Saunders Company, 1939.

TABLE 1.—Carcinoma of the Vulva
Regrouped According to Tausig's Clinical Groups

	No. of Cases	Percentage
Group 1. Tumor 1-3 cm. average diameter, no palpable metastases	10	8
Group 2. Tumor 4-7 cm. diameter, no palpable metastases	22	17
Group 3. Ulcer over 7 cm. diameter or deeper infiltration, or palpable gland metastases	40	31
Group 4. Large ulcer with vaginal involvement or large cancerous lymph glands.....	43	34
Group 5. Far advanced with broken down glands and cachexia	13	10
Total.....	128	

technic, seems to give the most adequate assurance of favorable results. In the hands of Tausig,¹ nine of his eleven patients (81.8 per cent) were well after five years, while in 1935 thirty of his sixty-seven patients treated were well after five years.

The results from earlier methods of treatment in our clinic were far from encouraging. Only fourteen (10.9 per cent) of ninety-one patients with carcinoma of the vulva who were followed up lived five years or more

10. McKelvey, John, and McLennan, C. E.: Staff Meet., Bull., Hosp. Univ. Minnesota 10:1-20 (No. B) 1939.

11. Plate, W. P.: J. Obst. & Gynec. Brit. Emp. 44:737-742 (Aug.) 1937.

12. Schreiner, J. F., and Wehr, W. H.: Surg., Gynec. & Obst. 58:1021-1026 (June) 1934.

THE SEX HORMONES THEIR PHYSIOLOGIC SIGNIFICANCE AND USE IN PRACTICE

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No one except an active worker in the field of endocrinology can attempt to follow the enormous literature, physiologic, biochemical and clinical. Even the specialist must restrict himself to a single branch—in the present instance to the sex hormones. The general practitioner will be hopelessly bogged by the extent and scattering of the articles published which trench on advanced organic chemistry, minutiae of physiologic experimentation and interpretation of intricate assays. The conflicting, often uncritical, clinical reports eventually force him to rely on a hit or miss trial of therapy with "endocrine remedies" of which he ignores the source and often the dosage. In this paper I shall try to clarify the situation as well as this is possible in the present state of our knowledge and in particular to measure the therapeutic results reported, by the yardstick of my own experience.

When, years ago, Eppinger, Falta and Rudinger¹ proposed the concept of interaction of the various glands of internal secretion with its famous triangle, this was largely a hypothesis which was accepted with reserve. Today no one will question such interaction. It has become the fashion to call the adenohypophysis or prepituitary the master gland, but this concept is no longer tenable, first, because the hypophysis reacts so readily to the influence of the other glands of internal secretion as to rob it of this distinction and, second, because the adrenal appears fully as important as the prepituitary, and more vital for existence.

The hormones to be discussed belong to two distinct groups. The prepituitary hormones are of protein character and nothing in regard to their structure is known.

The male and female sex hormones, as well as the adrenal androgen, belong to the steroid hormones, the molecular structures of which have been determined and their close relationship to cholesterol demonstrated.

Steroid Hormones (cyclopentenophenanthrene skeleton):

(a) Corticosterone with several companion hormones (adrenal cortical hormones $C_{21}O_{4-5}$) also one member of C_{19} group "adrenosterone"—male action.

(b) Progesterone $C_{21}O_2$.

(c) Male hormone C_{19} .

(d) Female hormone C_{19} .

Today it no longer suffices to regard the female as feminine and the male as masculine, since the two sexes have hormones of the opposite sex in their circulation and excretions. Every physician is familiar with the bisexual anlage in the human fetus in which for months the female (müllerian) and male (wolffian) ducts are equally well developed. This fetal, anatomic hermaphroditism, which is transitory, after puberty is replaced by a permanent chemical hermaphroditism. How great a role the sex hormones of the opposite sex (i. e., male hormone in the female and vice versa in the male) play in physiology or functional pathology is as yet an open question. It is possible that most often they occur as inactive intermediate metabolic products but that

under certain conditions they may disturb the balance of sex sufficiently to produce symptoms. Moreover these hormones are not strictly specific, some of the androgens and adrenal extracts, for example, showing estrogenic and progestational activity.²

To the prepituitary have been assigned some eight to ten hormonal functions.³ Possibly when a more final analysis can be attempted greater simplification will be attained: a stimulating hormone, affecting growth and metabolism and another stimulator of the various glands of internal secretion, a portion of which is now called the gonadotropic hormone, not sex specific, which activates in the female the follicle and the corpus luteum; in the male, the germinal and interstitial cells.

PREPITUITARY HORMONES

Beyond the fact that prepituitary hormones are closely associated with a protein molecule, lipid insoluble, thermolabile and sensitive to strong acids and alkalis, little is known despite the immense amount of work that has been concentrated on their identification. By various methods it has been possible to purify fractions of the prepituitary hormone to the extent that certain actions have been accentuated and others diminished; for example, an increase in thyrotropic, adrenotropic or gonadotropic action. Definite proof has been offered that the prepituitary hormone stimulates the gonads of both sexes but fails to act on the tubular apparatus of either sex directly. This signifies no action on the uterus and vagina in the female and on the seminal vesicles and prostate in the male. In other words, the prepituitary hormone produces no sexual effect on the castrate.

STEROID HORMONES

Gonadal.—Turning now to the hormones elaborated by the gonads, our knowledge is far more precise. In the female the ovary, through its granulosa cells, produces estradiol (dihydrotheelin) (1, fig. 1).⁴ Estrone (theelin) (2, fig. 1) is found in the urine of pregnant women, mares and stallions. This well defined and extremely active chemical compound, 0.1 microgram (0.0001 mg.) being the international unit,⁵ approximately the mouse unit, stimulates the uterus and vagina of the castrate, producing the now universally known effects. A close chemical relative of estrone elaborated by the corpus luteum (progesterone) continues the uterine effect (secretory) and causes the progestational changes necessary for embedding of the ova (3, fig. 1).

In the testes an allied chemical entity, testosterone (4, fig. 1), is elaborated. This acts on the prostate and seminal vesicles of the immature and castrate. Excretion is in the form of androsterone (5, fig. 1).

Adrenal.—Recently a masculinizing substance has been isolated from the adrenal cortex,⁶ a substance likewise chemically closely related to the preceding.

Placental.—In addition, the placenta, a transient (gestational) gland of internal secretion, has been found to elaborate not only estrogenic and progesta-

2. Deanesly, Ruth, and Parkes, A. S.: Estrogenic Action of Compounds of the Androsterone-Testosterone Series, *Brit. M. J.*, 1: 237 (Feb. 8) 1936. Klein, M., and Parkes, A. S.: Progesterone-like Activity of Certain Male Hormone Compounds, *Proc. Roy. Soc. London* 121: 574 (Feb. 3) 1937. Callow, R. K., and Parkes, A. S.: The Occurrence of Estrin and Progesterin in Adrenal, Testis and Hypophysis, *J. Physiol.* 87: 28 (March 14) 1936 (from *Proceedings of the Physiological Society*, March 14, 1936).

3. Van Dyke, H. B.: *The Physiology and Pharmacology of the Pituitary Body*, Chicago, University of Chicago Press, 1936.

4. MacCormac, D. W.; Thayer, S. A., and Doisy, E. A.: Isolation of Principal Estrogenic Substance from Liquor Folliculi, *J. Biol. Chem.* 115: 435 (Sept.) 1936.

5. Doisy, E. A.: International Standard for the Ovarian Follicular Hormone, *Science* 77: 344 (April 7) 1933.

6. Reichstein, T.: Ueber Bestandtheile der Nebennierenrinde: II. Adrenosterone, *Helvet. chim. acts.* 19: 223 (March 16) 1936.

From the gynecologic service and laboratories of the Mount Sinai Hospital.

Read before the joint meeting of the Chicago Medical Society and the Chicago Gynecological Society, Jan. 19, 1938.

1. Eppinger, H.; Falta, W., and Rudinger, C.: Ueber die Wechselwirkungen der Drüsen mit innerer Sekretion, *Ztschr. f. klin. Med.* 66: 1, 1908.

tional substances, identical with those produced by the ovaries, but likewise a prepituitary hormone, in many ways similar to that produced by the prepituitary.

CHEMICAL INTERRELATION

The close chemical resemblance of the estrogenic, androgenic and adrenogenic substances to one another and to cholesterol (6, fig. 1) favors the theory that cholesterol is the mother substance and that the gonads and adrenal cortex utilize this primary substance to elaborate their specific secretions. The possibility that, even at the primary site of elaboration, specificity is not absolute is brought up by the experiment of Hill,⁷ who by transplanting the ovary to a cooler site (from the abdomen into the ear of the mouse) obtained restoration of the prostate and seminal vesicles in the castrate, a masculine reaction: This would signify that the ovary under these abnormal conditions secretes a male hormone. In the absence of the ovaries, estrogenic substances continue to be excreted in the female.⁸ Where this is elaborated remains a mystery. It appears likely that at least some of the by-products or degradation products found during investigation of the body fluids and tissues, in sufficient concentration to produce physiologic reactions in test animals, play no role in the physiology of the body. But the regular presence of androgenic hormone in the female and estrogenic in the male cannot be side stepped by using this assumption. It is more probable that the chemically hermaphroditic conditions existing in the primate are as normal as the anatomically bisexual condition existing in the segments of *Taenia*, the common tapeworm. Much further study is required to clarify this question.

The question of bisexuality affects my own researches vitally because the conclusions drawn from the examination, qualitative and quantitative, of the estrogenic hormone found in the human circulation and human excretions may later prove to be so strongly altered by the discovery of antagonistic or additive action caused

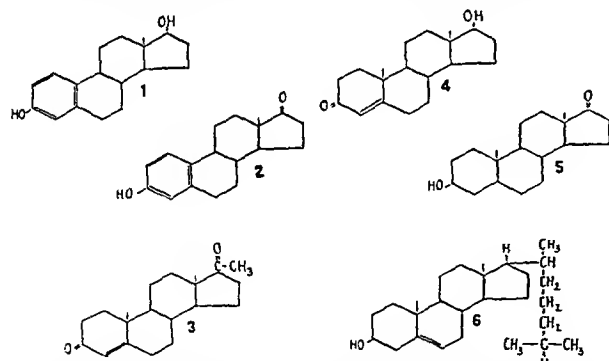


Fig. 1.—Structural formulas of steroid sex hormones and cholesterol. 1, estradiol, $C_{18}H_{24}O_2$, secreted by ovary. 2, estrone, $C_{18}H_{22}O_2$, excreted in urine. 3, progesterone, $C_{21}H_{32}O_2$, secreted by corpus luteum (excreted in urine as sodium pregnandiol glucuronide). 4, testosterone, $C_{19}H_{28}O_2$, secreted by testes. 5, androsterone, $C_{19}H_{26}O_2$, excreted in urine. 6, cholesterol, $C_{27}H_{46}O$, which may be the mother substance for all the steroid hormones.

by the presence of male hormones as to require complete or partial revision. The recent detailed studies of Gallagher, Peterson, Dorfman, Kenyon and Koch⁹ are

7. Hill, R. T.: Ovaries Secrete Male Hormone, *Endocrinology* **21**: 495 (July) 1937.

8. Frank, R. T.; Goldberger, M. A., and Salmon, U. J.: Estrogenic Substance in the Blood and Urine After Castration and the Menopause, *Proc. Soc. Exper. Biol. & Med.* **33**: 615 (Jan.) 1936.

9. (a) Gallagher, T. F.; Peterson, D. H.; Dorfman, R. I., and Kenyon, A. T.: Urinary Excretion of Estrogenic and Androgenic Substances by Normal Men and Women, *J. Clin. Investigation* **16**: 695 (Sept.) 1937. (b) Kenyon, A. T.; Gallagher, T. F.; Peterson, D. H.; Dorfman, R. I., and Koch, F. C.: The Urinary Excretion of Androgenic and Estrogenic Substances in Certain Endocrine States: Studies in Hypogonadism, Gynecomastia and Virilism, *ibid.* **16**: 705 (Sept.) 1937.

the first to supply reliable data for the daily excretion of both estrogenic and androgenic substances in normal and abnormal men and women. In both sexes surprisingly large amounts of the sexually opposite hormone occur—the average daily excretion of androgens is given by them as from 63 to 68 units for men and

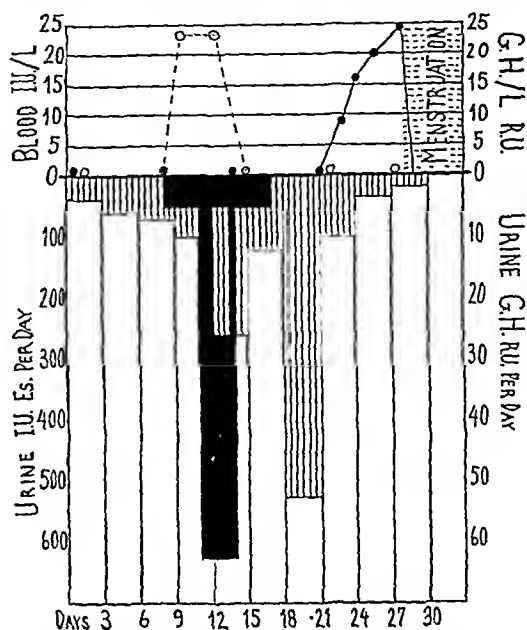


Fig. 2.—Estrogenic and gonadotropic assay in normal, fertile, menstruating women. Broken line and dotted circles, gonadotropic hormone in blood; black, gonadotropic hormone in urine; solid line and black dots, estrogen in blood; hatched lines, estrogen in urine. Normal urinary excretion of estrogens in twenty-eight to thirty day cycle equals 1,500 international units \pm .

from 42 to 56 for women; of estrogens for men from 9 to 12 and for women from 18 to 36, the difference being most apparent in the estrogenic factor.

CLINICAL ASSAYS

After the discovery in 1925 of estrogenic hormone in the blood¹⁰ and in 1927 in the urine,¹¹ clinical methods were developed for studying the concentration of these substances in normal women and in various conditions of disease. The technics employed are fairly standardized with the exception of a slight difference in interpreting the end reaction utilized by different investigators.

I shall give in briefest review such determinations as appear to have a direct clinical importance, particularly in controlling and evaluating the effects of therapy.

BLOOD AND URINE ASSAYS

Norms.—In my hands the fully normal, mature, fertile female shows surprisingly concordant hormonal conditions. The concentration of the estrogenic substance in the circulation remains low until the week preceding menstruation, attains its highest just before the menstrual flow begins and then rapidly diminishes. Estrogen is constantly excreted in the urine and feces throughout the cycle but around midperiod, corresponding to the time of ovulation, a marked increase of excretion persists for several days. The average level is

10. Loewe, Sigmund: Nachweis Brunsterzeugender Stoffe im weiblichen Blute, *Klin. Wehnschr.* **4**: 1407 (July 16) 1925. Frank, R. T.; Frank, M. L.; Gustavson, R. G., and Weyerts, W. W.: Demonstration of the Female Sex Hormone in the Circulating Blood: I. Preliminary Report, *J. A. M. A.* **85**: 510 (Aug. 15) 1925.

11. Aschheim, Selmar, and Zondek, Bernard: Hypophysenvorderlappen und Ovarialhormon im Harn von Schwangeren, *Klin. Wehnschr.* **6**: 1322 (July 9) 1927.

then resumed, to be followed by another still greater period of excretion, preceding menstruation by approximately three days and continuing until the first day of menstruation (fig. 2).

In the normal woman it has likewise been found that the gonadotropic substances show cyclic changes in the blood and urine. There is one period of increased accumulation in the blood, corresponding to the ninth to the eleventh day of the cycle, at which time both follicle stimulating and luteinizing reaction can be demonstrated. In the urine the period of maximum excretion is noted on the tenth and eleventh days, both gonadotropic factors likewise being demonstrated (fig. 2).

The next step was to study groups of carefully selected women who showed functional disturbances. The most striking functional disturbances clinically are the contrasting syndromes of amenorrhea on the one hand and menorrhagia or metrorrhagia on the other.

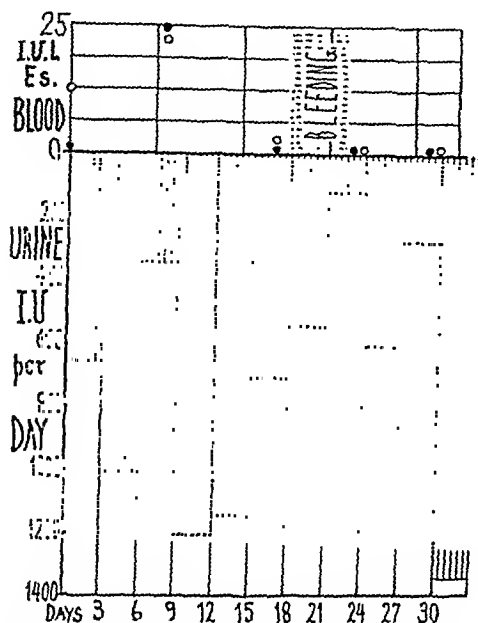


Fig. 3.—Assay in a case of menorrhagia and metrorrhagia. Total excretion of estrogens was 8,050 international units, $5\frac{1}{2}$ times the normal.

Amenorrhea.—In amenorrheic patients it was found that at least three groups existed—one with absent or greatly diminished secretion and excretion of estrogens, another with absolutely normal estrogenic hormonal conditions, and a third in which the secretion and excretion, particularly the latter, were greatly increased. The simultaneous investigation of the gonadotropic status showed that these groups were present in some patients who had a completely normal gonadotropic cycle and others who showed no gonadotropic secretion or excretion. Provisionally one is forced to conclude that some additional factor, other than the gonadotropic and estrogenic, has escaped attention.¹² For reasons to be stated later, the uterus itself may be at fault, but a disturbance of the ratio femaleness:maleness might likewise produce amenorrhea. (Graphs of amenorrheic patients are given in a previous paper.¹²)

The situation is hard to analyze, as the actual mechanism of menstruation is not fully understood, in spite of such light as has been shed by the researches of

Barthelmez¹³ on the structure and distribution of the endometrial vessels and by Markee,¹⁴ who studied the endometrium transplanted into the anterior chamber of the eye, observing long periods of blanching—ischemia. The most generally accepted theory is that of deprivation of estrogen. As yet no proof whatever has been offered in substantiation of a "bleeding hormone," such as Hartman¹⁵ and Kurzrok¹⁶ assume.

Menorrhagia and Metrorrhagia.—Investigations of functional menorrhagias and metrorrhagias also have failed to clarify completely their causation. A few of the patients showed normal hormonal conditions of secretion and excretion. The majority of this group, however, were noted to have a marked increase in excretion of estrogens in the urine without a corresponding elevation of level in the blood (fig. 3). In one case of bleeding in puberty I have found the presence in considerable concentration of free estrogen in the urine.

My associates and I have regularly sought for this form of estrogen since Marrian¹⁷ first directed attention to the fact that at various stages of pregnancy different quantities of combined (and therefore according to this author physiologically inactive or less active estrogen) and free ether soluble estrogenic substance were present. To the free estrogen he ascribed increased physiologic importance. The large number of nonpregnant women whom we have investigated from this standpoint, with the exception just mentioned, have shown entire absence or a minimal amount of the free estrogenic substance. Whether this as yet isolated observation will prove to have any importance requires further study.

As a group, functional menorrhagias and metrorrhagias give evidence of increased ovarian (estrogenic) activity without increased accumulation of estrogens or pituitary hormones in the circulation.

Premenstrual "Tension."—The only condition, with the exception of pregnancy, in which we have found an increase in the accumulation of estrogenic substance in the blood, but in this condition without corresponding increase in the excretion, is the group termed "premenstrual tension" (fig. 4). Physiologically these women appear to have an unduly high threshold of excretion for estrogens. This is the group in which marked nervous symptoms occur premenstrually, relieved as if by magic with the onset of bleeding.¹⁸ The menstrual flow, however, is not excessive.

Menopause.—A detailed study of women in the menopause, due to either physiologic causes (age), operative castration or x-ray sterilization, has shown a marked disturbance of the hormonal balance.¹⁹ Our investigations were limited to the gonadotropic substance and estrogens. In the majority of these women, the gonadotropic substances are increased in both the blood and the urine and are continuously excreted.

13. Barthelmez, G. W.: Histological Studies on the Menstruating Mucous Membrane of the Human Uterus, *Am. J. Obst. & Gynec.* 21: 623 (May) 1931.

14. Markee, J. E.: Menstruation in Intra-Ocular Endometrial Implants in Macaque Mulatta, *Anat. Rec.* 64: 32 (March 25) 1936.

15. Hartman, C. G.; Fitor, W. M., and Geiling, E. M. K.: The Anterior Lobe and Menstruation, *Am. J. Physiol.* 95: 662 (Dec.) 1930.

16. Kurzrok, Raphael: The Endocrines in Obstetrics and Gynecology, Baltimore, Williams & Wilkins Company, 1937.

17. Cohen, S. L., and Marrian, G. F.: XII. The Isolation and Identification of a Combined Form of Estriol in Human Pregnancy Urine, *Biochem. J.* 30: 57 (Jan.) 1936. Cohen, S. L.; Marrian, G. F., and O'Leil, A. D.: CCCXIV. Estriolglucuronide, *ibid.* 30: 2250 (Dec.) 1936.

18. Frank, R. T.: The Hormonal Causes of Premenstrual Tension, *Arch. Neurol. & Psychiat.* 26: 1053 (Nov.) 1931.

19. Zondek, Bernard: Ueber die Hormone des Hypophysenverdrängen, *Klin. Wochenschr.* 9: 393 (March 1) 1939. Fluhmann, D. F.: Anterior Pituitary Hormone in the Blood of Women with Ovarian Deficiency, *J. A. M. A.* 93: 672 (May 25) 1929.

12. Frank, R. T.; Goldberger, M. A.; Salmon, U. J., and Felshin, Gertrude: Amenorrhea: Its Causation and Treatment, *J. A. M. A.* 109: 1863 (Dec. 4) 1937.

This has been ascribed to overaction of the pituitary when unopposed by the ovaries. In many female castrates estrogens continue to be excreted for years.⁸ As previously mentioned, the source of these estrogens has never been explained.

The response to estrogenic medication is accurately mirrored by the disappearance of the gonadotropic substances from the blood and urine during the time that this medication proves effective. This affords an accurate means of evaluating the success of the therapy quite apart from the subjective symptoms, previously the only available measure, which have led to so many discussions and disputes. The vaginal spreads obtained from these patients, as first recommended by Papanicolaou and Shorr,²⁰ likewise may offer some objective proof of the effect of therapy. We²¹ have found the male hormone equally effective in abolishing the excess gonadotropic excretion and in relieving the subjective symptoms. The male hormone, however, requires larger dosage and appears to have no advantage over the female hormone.

Determination of Sex.—In spite of the presence of the female hormone in the male, the determination of sex in the presence of malformation as first advocated by us²² in 1926 appears still to be of value, with the proviso that these determinations be continued over a sufficient length of time to show adequate periodicity. In the individuals investigated, recurring periodic peaks of estrogenic concentration in the blood and urine were noted at intervals of from twenty-one to twenty-five or thirty days in a given patient. No such periodicity has been described in the male.

Viability of Fetus.—Another valuable use for hormone assay is applicable to the determination of the viability of the fetus. In cases in which fetal death is suspected, viability can be decided in forty-eight hours. After the eighth week of pregnancy we²³ have regularly found at least 1 international unit of estrogen in 40 cc. of the woman's blood. Within twenty-four hours after the death of the fetus this level of concentration has diminished, giving a negative reaction.

Adrenal Carcinoma.—Finally an as yet unexplained hormonal condition has been noticed in the presence of adrenal cortical carcinoma.²⁴ In the four cases so far studied a mouse reaction was obtained with 2 cc., 1 cc. and, in one instance, as little as 0.075 cc. of straight urine, which signifies the presence of from 500 to more than 13,000 mouse units of estrogenic substance to the liter of urine in the presence of a negative pregnancy test. The estrogen test proved negative in cases of adrenal cortical hyperplasia, adenoma and other conditions producing syndromes similar to the adrenal cortical one but with absence of carcinoma of that gland.

Pregnancy Tests.—It is hardly necessary to emphasize the value or to describe the applications of the pregnancy tests. In our laboratory we employ the

Friedman test exclusively both for normal and abnormal pregnancy and for the diagnosis of testicular tumors. In normal pregnancy we have noted a positive reaction with as little as 0.075 cc., although this is unusual and is considered a sign of abnormality (chorionepithelioma, hydatid) by some.

Whatever the future may have in store for the gonadotropic and estrogenic determinations, such as we perform, I can state without reservation that they have proved of great value to us in evaluating the various gynecologic and obstetric conditions which have confronted us in practice. They have helped us in diagnosis, in prognosis and in gauging the effects of therapy.

PROGESTIN ASSAY

Quite recently a new method of assay has been added to the armamentarium of the laboratory worker by Venning and Browne.²⁵ They have developed a gravimetric method for determining the amount of sodium pregnandiol glucuronide excreted in the urine, which gives information as to when the corpus luteum begins to secrete, the amount secreted and how long the secretion persists. This affords an objective test to distinguish anovulatory from ovulatory menstruation and

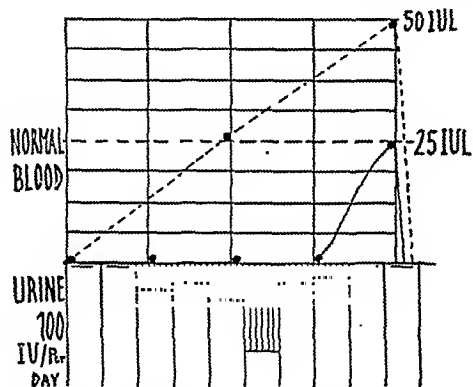


Fig. 4.—Assay in a case of premenstrual tension. Blood contained twice the normal amount of estrogens; urine excretion of estrogen, 320 international units, one fifth of normal excretion.

may serve also to show when progesterone is lacking during pregnancy and what clinical symptoms may be due to such lack.

Do these assays serve as a help and guide in treatment? It is apparent that cyclic variations in the concentration of gonadotropic, estrogenic and progestational substances occur in the blood of normal women. In amenorrhea the cycle may be absent, normal or decreased. In menorrhagia and metrorrhagia overproduction of estrogens with prompt excretion is the rule. In premenstrual tension overaccumulation of estrogens due to a high renal threshold is noted. In the menopause a continuous high level of gonadotropic factors exists in the blood. Are these known facts regarded in developing appropriate treatment?

THERAPY

The tendency to consider every obscure condition endocrine in origin is now in fashion. This tendency is so great that frequently no attempt is made to exclude nonendocrine disturbances; for example, in gynecology the disregard of fibromyomas of the uterus, incomplete abortion and even ectopic gestation as causes of bleed-

20. Papanicolaou, George, and Shorr, Ephraim: The Action of Ovarian Follicular Hormone in the Menopause, as Indicated by Vaginal Smears, *Am. J. Obst. & Gynec.* **31**: 806 (May) 1936.

21. Salmon, U. J.: Effect of Testosterone Propionate upon Gonadotropic Hormones and Vaginal Smears of Human Female Castrates, *Proc. Soc. Exper. Biol. & Med.* **37**: 488 (Dec.) 1937.

22. Frank, R. T., and Goldberger, M. A.: The Female Sex Hormone: V. A New Method of Determining Sex in the Presence of the Malformation of the Genital Organs, *J. A. M. A.* **87**: 554 (Aug. 21) 1926.

23. Spielman, Frank; Goldberger, M. A., and Frank, R. T.: Hormone Diagnosis of Viability of Pregnancy, *J. A. M. A.* **101**: 266 (July 22) 1933.

24. Frank, R. T.: A Suggested Test for Functional Cortical Adrenal Tumor, *Proc. Soc. Exper. Biol. & Med.* **21**: 1204 (June) 1934; A Suggested Test for Cortical Adrenal Carcinoma, *J. A. M. A.* **109**: 1121 (Oct. 2) 1937.

25. Venning, E. H., and Browne, J. S. L.: Studies on the Corpus Luteum Function: I. The Urinary Excretion of Sodium Pregnanediol Glucuronide in the Human Menstrual Cycle, *Endocrinology* **21**: 711 (Nov.) 1937.

ing. I have twice encountered patients who have received long continued courses of estrogenic treatment although they had no vaginas and minute solid rudimentary uteri, the anatomic cause of their amenorrhea never having been investigated or suspected. Similarly I have seen unmarried, amenorrheic patients treated with estrogens and thyroid extract for amenorrhea due to pregnancy, no physical examination having been performed.

In evaluating the results of therapy, one should take care likewise to exclude accidental or coincidental results, which are not uncommon. I have now ten patients in whom amenorrhea had persisted from two to seven years, who within four weeks of my first seeing them and without any therapy spontaneously menstruated. I have records also of a number of patients who conceived although amenorrheic for many years. I have been annoyed repeatedly during the hormonal study of patients with long continued menorrhagia or metrorrhagia to have their cycle become normal and continue normally, without medication having been given.

I must also warn against accepting with too much credence the reports of those authors who each year publish reports of wonderful results in the treatment of functional disturbances and the year following describe similar therapeutic triumphs with an entirely new remedy for the same disturbance. It requires little knowledge of the history of medicine to recollect the glowing reports of success by means of endocrine remedies which today are known to contain no active substances.

To instance but a few, let me recall the cure of vomiting of pregnancy in a large series of cases reported by a well known obstetrician²⁶ who injected a "corpus luteum" extract which later investigation showed to contain no active principle. Not so long ago hemophilia²⁷ was said to respond to estrogenic injections although more careful study proved this claim fallacious. Many must remember the claims made that any gonadotropic substance would cure baldness in either sex.²⁸

Today a number of chemical entities are available; among the estrogenic substances are estrone, estradiol and its benzoate, estriol glucuronide (emmenin) available in strong concentration. The androgenic substances at our disposal are testosterone, testosterone propionate, androsterone and dihydroandrosterone benzoate. Progesterone, although the supply is limited, is likewise obtainable in pure form. In the prepituitary preparations, little standardization and little purification have been attained. Available are many extracts prepared from pregnancy urine; likewise, concentrates of the serum of pregnant mares, as well as growth and maturity factors derived from the prepituitary itself, all of which act on the laboratory animal but, at least in my hands, have as yet proved of little value when used in the human subject.

Were I to attempt to recount the application of these various substances on men and women, it would read too much like the prospectus of some pharmaceutical houses or the recommendations found in the majority of current endocrinologic manuals. However, in extenuation one should mention that the pamphlets sent out by the pharmaceutical trade, certainly those published

by the more reliable firms, are based exclusively on clinical reports culled from medical literature.

Estrogens.—Recently estrogenic therapy has again been recommended in the treatment of nausea and vomiting of pregnancy. Hawkinson²⁹ reported forty-eight cures in fifty patients. The same type of treatment has been advocated by Schute³⁰ in eclampsia. Eight cases were studied. Throughout pregnancy huge quantities of estrogens are present in the blood stream; therefore this therapy appears illogical. No attempt as far as I know has as yet been made to treat the fetus in utero by these methods. However, Mabel Potter³¹ found that premature infants responded to estrogens given by mouth, by general improvement and by added vitality. In the infant and adolescent, estrogenic vaginal suppositories containing 1,000 international units have helped to cure gonorrheal vaginitis by producing keratinization of the vagina and acidification of the vaginal secretion. Lewis and Adler³² recently reported thirty cases of thirty-three cleared up in twenty days by this medication alone. Their results have been amply confirmed.

In the treatment of adults innumerable indications have been advocated. I shall mention such as are authenticated, even if in many instances I cannot agree with the results claimed.

Dysmenorrhea, that debatable field, the causation of which has never been fully clarified, according to Novak,³³ responds to estrogenic therapy given between the periods. Lackner, Krohn and Soskin³⁴ would limit its use to patients with dysmenorrhea whose uteri are small and infantile. In amenorrhea, most authors have recommended the estrogens. Kurzrok, Wilson and Cassidy³⁵ found that large doses are required. With this I can fully agree, although the therapy to me appears futile. In fact, the difference in response between functional amenorrhea and the amenorrhea noted in the menopause is so striking that I utilize it in diagnosis.¹²

Not infrequently one encounters women in the late thirties and the question arises whether one is dealing with a premature menopause or a transient functional amenorrhea. In addition to the finding that the menopausal patients show a continuous high excretion of gonadotropic factor in the urine, they respond to as little as 150,000 international units of estrogen by disappearance of the gonadotropic factor in their excretion and, after withdrawal, not infrequently by the appearance of uterine bleeding. To induce uterine bleeding in functional amenorrhea requires at least 1,000,000 international units.

I have seen no permanent improvement in amenorrhea resulting from estrogenic medication. The rare condition of premenstrual edema appearing in the face and hands, sometimes widespread over the entire body, may be relieved by giving emmenin, the estriol glucuro-

29. Hawkinson, L. F.: Nausea and Vomiting of Pregnancy: Fifty Cases Treated with Estrogenic Preparations, *Minnesota Med.* 19: 519 (Aug.) 1936.

30. Schute, Evan: The Use of Estrin in the Treatment of Eclampsia, *Endocrinology* 21: 594 (Sept.) 1937.

31. Potter, Mabel F.: Estrogenic Substance Used in the Treatment of Premature Infants, *Brit. M. J.* 1: 1201 (June 12) 1937.

32. Lewis, R. M., and Adler, E. L.: Endocrine Treatment of Vaginitis, *J. A. M. A.* 106: 2054 (June 13) 1936.

33. Novak, Emil: The Treatment of Primary Dysmenorrhea with Especial Reference to Organotherapy, *Am. J. M. Sc.* 185: 237 (Feb.) 1933.

34. Lackner, J. E.; Krohn, Leon, and Soskin, Samuel: The Etiology and Treatment of Primary Dysmenorrhea, *Am. J. Obst. & Gynec.* 31: 248 (Aug.) 1937.

35. Kurzrok, Raphael; Wilson, Leo, and Cassidy, M. A.: The Treatment of Amenorrhea with Large Doses of Estrogenic Hormone, *Am. J. Obst. & Gynec.* 29: 771 (June) 1935.

26. Hirst, J. C.: Corpus Luteum Extract in Nausea of Pregnancy, *J. A. M. A.* 66: 645 (Feb. 26) 1916.

27. Birch, Carrell L.: Hemophilia and the Female Sex Hormone, *J. A. M. A.* 97: 244 (July 25) 1931.

28. Bengtson, B. N.: Prepituitary Alopecia, *J. A. M. A.* 97: 1355 (Nov. 7) 1931.

nide, discovered by Collip³⁶ and purified by Marrian.³⁷ In this I can agree fully with Atkinson and Ivy.³⁸

Riley, Brickner and Kurzrok³⁹ have used estrogens in a dosage of 50,000 international units for the treatment of premenstrual migraine. My own experience has not been as favorable as theirs. Premenstrual dysmenorrhea, is as yet a very loose term applied to many causes and ill defined.

The relief of painful breasts and adenosis, according to Lewis and Geschickter,⁴⁰ may be obtained by long continued treatment with estrogens. In the great majority of patients the pain is self limited and clears up spontaneously within two to six months. I would therefore regard therapeutic results with reserve if the condition is of short duration. In two instances in which the symptoms persisted for years, complete restoration to the normal occurred after pregnancy and lactation. However, I can hardly advise this as a regular therapeutic measure.

Among the more recent therapeutic uses of estrogens, their application has been recommended in the treatment of acne in both sexes,⁴¹ in atrophic rhinitis⁴² and in "Cushing's syndrome,"⁴³ which would include the more frequent adrenal cortical syndrome. Their use has likewise been advocated in hirsutism in the female, presumably to counteract the presence of a masculinizing factor. These reports require further confirmation.

The neurovascular, digestive and many of the other disturbances of the menopause are promptly relieved by sufficient doses of estrogens. Severinghaus⁴⁴ was the first one to give adequate amounts. This in my opinion is the sovereign field for the use of estrogens. The flushes, sweats, psychic unrest, indigestion, arthritic symptoms and vaginitis of the menopause promptly disappear. The therapy may be given parenterally (hypodermically in oily medium) or by mouth (pro-gynon-DH [estradiol]). The dosage necessary varies between 100,000 and 150,000 international units in the course of two weeks. A return of flushes requires resumption of this therapy, usually at increasingly long intervals. Withdrawal of the medication is frequently followed by uterine bleeding, even in the aged, and need occasion no disquiet.

As indicated from the foregoing, senile vaginitis responds likewise to estrogenic therapy.⁴⁵ Transient improvement may be expected in kraurosis vulvae, but I consider the therapy, after many years of trial, purely palliative because of the frequent recurrences of itching, the unarrested progression of atrophy and the appearance of carcinoma in kraurotic areas. Vulvectomy is far preferable to long continued treatment by estrogens.

As could be anticipated from the effect on the milder nervous symptoms of the menopause, it is not surpris-

ing that glowing reports of the benefit exerted on involuntional melancholia and the menopause psychoses have been published.⁴⁶ The dosage advocated has varied between 5,000 international units twice a week and from 150,000 to 200,000 international units a month.

I do not consider the reports on the treatment of sterility and of menorrhagia by means of estrogen of sufficient importance to warrant more than passing mention.

The question has been raised whether estrogenic medication may favor carcinogenesis. No direct confirmatory evidence has been adduced in the human being. With so much cholesterol and intermediate cholesterol derivatives normally circulating in the blood, no such by-effects need be anticipated from enteral or parenteral absorption, with the reservation that localized dermal applications should be avoided, as the skin is particularly responsive to continued application of or exposure to carcinogenic agents in both animals and human beings.

Corpus Luteum Hormone.—The corpus luteum hormone has proved of distinct value in two conditions. It is available in the form of a crystalline product, progesterone, usually now of synthetic derivation.

It has been recommended for dysmenorrhea by Wilson and Elden.⁴⁷ They found that it afforded relief in 59 per cent of seventeen cases. Their dosage was from one fifth to 1 international (Corner) unit, given from three to six days before the onset of the anticipated period. I have reserved this treatment for the most intractable cases, which have resisted all other therapy and in which castration or presacral sympathectomy had been advised by others. The dosage that I employ is 1 rabbit unit on successive days, starting three days before the anticipated period, and 5 rabbit units morning and evening on the day preceding, sometimes also on the first day of menstruation. Its effect in these cases has been satisfactory.

Another use for progesterone has been found in threatened and habitual abortion. Here the criteria available in judging its efficacy are difficult to formulate. Falls, Lackner and Krohn⁴⁸ have reported thirty-four successes among forty-one cases. Numerous other reports are available. My own experience is comparatively small. I can state that, in two cases in which four successive abortions had occurred previously, pregnancies ran an uninterrupted and successful course. In numerous other patients with one to two antecedent abortions, the accidental factor has been too great to permit of valid deductions. Here the Venning⁴⁹ test may prove an aid in controlling clinical application.

Prepituitary and Prepituitary-like Therapy.—Three different types of therapeutic agents must be considered. Gland substance itself, not available in sufficient quantity or concentration; concentrated serum of pregnant mares, which is just becoming available in higher concentration, and the readily obtainable anterior pituitary-like factor derived from pregnancy urine.

36. Collip, J. B.: Placental Hormone, *Canad. M. A. J.* 23: 631 (Nov.) 1930.

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My own experience agrees with the recent report of Hamblen and Ross⁵⁰ that there is no response in the human ovary to subcutaneous injections of anterior pituitary-like factor. Its use has been advocated in dysmenorrhea by Novak⁵¹ in 1933; in functional bleeding, by Novak and Hurd,⁵¹ Henderson⁵² and Wilson and Kurzrok,⁵³ the latter also combining it with extract of corpus luteum. I can in no way agree with their observations.

This therapy has been advocated for amenorrhea by many authors.⁵⁴ Anterior pituitary-like gonadotropic factor has proved entirely ineffective in my hands no matter what the dosage used. I am now trying the Upjohn preparation (not on the market) and also the Danish Antex-Leo, both from pregnant mare's serum, for amenorrhea but am not ready to report finally, although the results are not encouraging.

Davis in the discussion of a paper and also in the discussion of my present presentation has informed me that he injects the concentrate of pregnant mare's serum intravenously in the human being. Ovulation and corpus luteum formation take place. From other as yet unpublished results I gather that ovulation can be induced not only in normal but also in amenorrheic and sterile patients. Severe allergic symptoms—shock, serum sickness, and the like—are bound to occur unless great caution is used. I myself have not had the temerity to use this preparation intravenously.

The use of anterior pituitary-like gonadotropic factor in undescended testicle has proved a boon, although the results obtained are not as uniform as they were at first asserted to be. In diagnosing undescended testes one should take care not to include a testicle drawn up high in the scrotum against the external inguinal ring, or, if this is large, even within the canal. A warm bath will show whether the testis is really undescended. Schapiro⁵⁵ in 1930 first introduced this method of therapy. It has been utilized by Goldman and Stern,⁵⁶ Lawrence and Harrison⁵⁷ and many others. Today long continued injections rather than huge doses are advised. From 100 to 300 rat units given twice a week over several months will show whether in a given case this therapy proves effective. In every instance one should use it before resorting to surgery.

A single large dose (1,200 rat units) may be of use in determining the site of an intra-abdominal testicle, as this high dosage usually produces well localized pain corresponding to the location of the undescended testis.

The use of anterior pituitary-like gonadotropic factor in hypogonadism, over long periods of time, has been advocated by the majority of endocrinologists. The good results reported, in my opinion, are due to a misconception. The patients in this numerous group,

which includes mainly boys between 12 and 15, obese, delicate skinned, with poorly marked secondary sex characteristics, small phallus and gonads, in the large majority are suffering from a self-limited retardation. Fully 90 per cent of these adolescents become normal without therapy but at an age later than that of the majority of normal boys. The therapy, if continued for several years, is therefore credited with their improvement. In the older age group no improvement is noted. McCahey, Hansen and Soloway⁵⁸ noted no increase in excretion of male hormone in five cases of hypopituitary hypogonadism in which 200 rat units of this substance was given twice a week.

I am not able to give my personal evaluation of the efficacy of anterior pituitary-like gonadotropic factor in azoospermia,⁵⁹ male sterility⁶⁰ and impotence. These reports are not convincing, as careful and long continued counting of the spermatozoa before and after treatment is needed.

The application of anterior pituitary-like gonadotropic factor in both males and females suffering from Fröhlich's disease has been reported.⁶¹ In my own hands the effect has been nil. The same applies to an even greater degree in the treatment of Simmonds' disease, a condition in which the pituitary has lost its function and which is as fatal as Addison's disease. Good reports have been published by Hicks and Hone,⁶² Hawkinson,⁶³ and Dunn.⁶⁴ I agree with Regester and Cuttle,⁶⁵ who tried the anterior pituitary-like gonadotropic factor, the growth factor and also the maturity factor without avail.

It should be remembered that there is at least one syndrome, particularly common in adolescents, which imitates Simmonds' disease in the most striking fashion. It is sometimes called "anorexia nervosa" and is based entirely on psychic factors, often produced by voluntary, secret starvation. This condition, which I have repeatedly seen diagnosed as Simmonds' disease, responds magically to separation from the family and elucidation of the underlying psychic cause.⁶⁶

Some of the other uses of anterior pituitary-like gonadotropic factor which appear to be based on a most insecure foundation and do not require discussion are the treatment of acne,⁶⁷ hyperthyroidism⁶⁸ and even enuresis.

Male Sex Hormones.—The male sex hormones available for therapeutic use are testosterone and testosterone propionate, dihydroandrosterone benzoate as well as androsterone. It is only recently that really accurate titrations of the amount of male and female sex hor-

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mone found in normal^{9a} and in diseased males^{9b} have become available, and therefore as yet the results recorded are based on purely empirical evidence. Those permitting of any critical evaluation are surprisingly few.

The McCullaghs and Hicken⁶⁰ report improvement of neurovascular symptoms and some return of libido in castrates treated with androtin, containing only 6 capon units per injection. Our own attempts to treat the two castrates available to us were handicapped by the fact that the one suffered from no symptoms and in the other one, a case of bilateral tuberculosis, an acute pulmonary lesion developed which definitely interfered with the evaluation of criteria. The marked excess of gonadotropic substance in the urine was unaffected by doses of androsterone (20 mg.), dihydroandrosterone benzoate (25 mg.) and testosterone (115 mg.), nor was estrogenic therapy, which proved so effective in the female castrate,⁸ of any avail.

This is particularly surprising, since testosterone and testosterone propionate cause the gonadotropic hormone to disappear in the female castrate²¹ and relieve the symptoms in a fashion identical with that of the estrogens, although large doses are required.

The reports on rejuvenation experiments are not directly applicable to this discussion, since they consist largely of transplantation, sometimes of heterologous testicular tissue or of ligation of the vas. The testicular "mush" injected by Stanley⁷⁰ likewise does not allow of any critical review. The few reports on the treatment of azoospermia with androgens are entirely unconvincing. McCullagh and Hicken⁶⁰ report improvement in hypogonadism with the same preparation they used in eunuchs.

Considerable literature has accumulated on the treatment of enlargement of the prostate by means of androgens. After castration and in hypogonadism, the size of the prostate is diminished. Prostatic enlargement is a change noted increasingly with advancing age. It has been ascribed to lack of male hormone. However, in experiments, injections of androgen into castrates increase the size of the prostate. The question is further complicated by the reports of Deming,⁷¹ who states that a large number of prostatic enlargements arise from the submucous glands and that these structures are uninfluenced by endocrine stimuli. With these numerous inconsistencies to be accounted for, the published results require the strictest scrutiny.

Van Cappellen⁷² in 1933 reported improvement in prostatic hypertrophy following the injection of an androgen called Hombreol. Eleven of twelve patients were said to have shown marked improvement. Since then Laqueur⁷³ has collected 127 cases, mainly from the literature, and likewise records improvement. Another report, by Gostimirović,⁷⁴ describes four of thirteen cases markedly improved in which from 272 to 1,182 capon units in the total treatment was used. This report, as well as the preceding ones, is not convincing, as the criteria are subjective. Similar results

are claimed by Day, Martin, Kutzmann and Kessler,⁷⁵ who note improvement in forty patients with prostatic hypertrophy treated with testosterone. In none of these quoted articles has any real measurement of the prostate either by rectal palpation or by cystoscopy been attempted, the subjective symptoms alone being evaluated. Lower⁷⁶ has employed preparations which he calls "Inhibin" as well as "Contruin." From Lower's description as well as from the names he has given to the preparations, it would appear that he ascribes the effect to a purely hypothetical antihormonal action. As I have refrained throughout my discussion from trenching on the very debatable subject of antihormones, I shall certainly not take it up in this connection. The results obtained by Lower and his group are likewise impossible to evaluate.

I may therefore state that male hormone therapy is a very effort should be made to obtain definite criteria. In the eunuch the disappearance of the excess excretion of gonadotropic hormone is a strictly objective criterion. Definite return of libido is confirmatory evidence, as this is said to disappear in 90 per cent of the cases, according to the most recent German statistics,⁷⁷ a country in which a large number of castrations have been performed. Complete disappearance of the neurovascular symptoms, if present, can be utilized in the same fashion. Needless to say, treatment will be purely palliative as in the female. In hypogonadism I see no prospect of androgenic hormone therapy correcting the condition, which must be ascribed primarily to prepituitary deficiency. Whether the treatment will prove of real value in azoospermia and prostatic hypertrophy appears today to be an open question.⁷⁸

CONCLUSIONS

1. The sex hormones consist of two groups:
 - (a) The prepituitary (adenohypophysis) and prepituitary-like (A. P. L., placenta, pregnancy urine).
 - (b) The steroid hormones (ovary, testis, adrenal, placenta).
2. The prepituitary and prepituitary-like hormones are of protein composition; their structure is unknown; they act on the ovary and testis.
3. The steroid hormones have been isolated; their structure has been determined; they act on the müllerian and wolffian ducts in the immature, adult and castrate subject.
4. A permanent condition of chemical hermaphroditism persists throughout life in the human male and female. Disturbances in the ratio maleness:femaleness may perhaps give rise to clinical manifestations.
5. Absence, decrease or increase of the estrogens and/or of progesterin causes functional disturbances in the female. Functional disturbances in the male, as yet not as well defined, are probably due to similar variations of androgen secretion.
6. The exact chemical constitution of active estrogens and androgens which occur in the circulation have not been fully clarified. Combinations, intermediate products and products in process of excretion have different potencies. These variations as yet defy analysis.

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7. The steroid sex hormones when given in small amount and for short periods stimulate prepituitary function; in large amount and over longer periods of time they inhibit it.

8. In the female, estrogens are of use in the treatment of infantile gonorrhea and in almost every variety of menopause disturbance. Estrogens have been employed in many other conditions without convincing evidence of their efficacy. Progestin relieves dysmenorrhea and may prevent abortion due to defective function of the corpus luteum of pregnancy.

9. Androgens should prove effective in the relief of castration symptoms in the male. They are being tried for many other diseases.

10. Anterior pituitary-like gonadotropic factor is effective in causing the descent of the testis in a large percentage of bilateral and unilateral cryptorchid patients.

11. When direct endocrine therapy is unavailing, improvement or cure may yet be obtained by other measures such as snake venom, curettage or roentgen therapy for menorrhagia; protein diet, reduction of obesity or thyroid extract for amenorrhea.

12. There is every prospect that when our understanding of the complicated hormone conditions which confront the endocrinologist are further clarified and when prepituitary preparations are improved, the therapeutic results will be bettered.

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OXYGEN IN HIGH CONCENTRATIONS FOR RELIEF OF PAIN

IN CORONARY THROMBOSIS AND SEVERE
ANGINA PECTORIS

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LOS ANGELES

There are two immediate objectives in the treatment of patients with acute coronary thrombosis, namely the support of the circulation and the relief of pain. The beneficial effects of oxygen administration in sustaining cardiorespiratory function, especially when significant degrees of shock or pulmonary edema exist, are well known. It is not widely recognized, however, that the inhalation of oxygen in high concentrations is effective in alleviating the pain associated with coronary thrombosis and angina pectoris.

The pain associated with coronary thrombosis is notoriously variable in intensity. Its severity depends on the size of the coronary artery occluded, the speed of occlusion, the adequacy of coronary arterial anastomoses, the activity to which the myocardium is subjected, the sensitivity of the patient to pain, and other factors. Pain may be entirely absent¹ or so mild that the underlying pathologic state is overlooked. In the vast majority of instances it is adequately controlled by the administration of morphine or other derivatives of opium. Oxygen in these cases is unnecessary unless symptoms of cardiorespiratory impairment are present.

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Occasionally, however, the pain accompanying a sudden major arterial occlusion is so extreme that even large doses of opiates fail to control it. The employment of oxygen at concentrations of from 80 to 100 per cent in such cases becomes an important therapeutic adjunct.

A parallelism exists in cases of coronary sclerosis with angina pectoris. In many instances the pain is sufficiently controlled by the restriction of activity alone. In others the addition of sedatives, perhaps in combination with one of the xanthine derivatives, seemingly modifies the frequency and severity of the seizures to a degree sufficient to afford relative comfort. Rarely is the pain so severe that glyceryl trinitrate in proper dosage fails to give symptomatic relief. Extreme cases, however, are encountered in which paroxysms are occasioned by the slightest exertion or excitement. Under such circumstances the usual medication may be inadequate to control the discomfort or administration of glyceryl trinitrate may be necessitated too often to be a safe procedure. The employment of oxygen in high concentrations in such instances may afford considerable comfort to the patient.

Rizer,² employing the tent apparatus in 1929, noted that the pain resulting from acute coronary thrombosis could be relieved by inhalation of oxygen. This observation was subsequently confirmed by Barach,³ Barach and Levy⁴ and others.⁵ Mild or moderately severe pain often may be alleviated when the oxygen tent is used. In my experience, relief from severe pain is seldom complete when oxygen is employed in concentrations of from 40 to 60 per cent such as are afforded by a well regulated tent apparatus. Dramatic abatement of pain, however, may be produced by the administration of oxygen in high concentrations (from 80 to 100 per cent). Efficient continuous administration of oxygen at such concentrations has recently been made possible by an inhalation apparatus designed by Boothby, Lovelace and Bulbulian. The B. L. B. mask has been fully described and its clinical uses outlined by Lovelace.⁶ It served as a simple, comfortable and economical method of oxygen administration in the cases to be reported.

ILLUSTRATIVE CASES

CASE 1.—A merchant aged 62, first seen Oct. 15, 1938, had been conscious of a cardiac irregularity for twenty-eight years. For three months he had noted, on exertion, a sense of retrosternal pressure which was entirely relieved by rest. Electrocardiographic tracings failed to reveal evidence of myocardial degeneration. A diagnosis of coronary sclerosis with angina pectoris was made.

While at rest October 18 the patient was seized with an excruciating retrosternal pain which radiated to the left shoulder and elbow. The pain was accompanied by moderate dyspnea and by symptoms of mild shock. One grain (0.065 Gm.) of morphine sulfate administered in doses of one fourth grain (0.016 Gm.) within a period of one and one-half hours failed to provide relief. One hundred per cent oxygen was then administered by means of a B. L. B. apparatus; within three minutes the pain ceased. The apprehension, restlessness and dyspnea subsided and the patient fell asleep. For the ensuing twelve hours 100 per cent oxygen was administered continuously. When an attempt was made to discontinue its administration the pain recurred. Relief was obtained promptly when oxygen

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therapy was reinstituted. During the succeeding five days oxygen was employed continuously except for short interruptions every three or four hours. Retrosternal pain almost invariably recurred when the inhalation was interrupted and on three occasions there were severe exacerbations. Each of these promptly subsided when treatment was resumed. Electrocardiographic studies made on the fourth day disclosed the characteristic manifestations of a posterior basal infarction.

Six days after the onset, oxygen therapy was discontinued and episodes of paroxysmal ventricular tachycardia, lasting from ten minutes to several hours, made their appearance. Quinidine sulfate was tried in doses up to 30 grains daily for five days but without effect on either the frequency or the duration of the attacks. At the suggestion of the patient, oxygen administration (100 per cent) was again tried. Subsequent episodes of tachycardia were aborted in from two to ten minutes with inhalations of oxygen. Recovery otherwise was uneventful.

Complete relief of intense pain accompanying coronary thrombosis was obtained in case 1 by the administration of 100 per cent oxygen. Large doses of morphine had failed to afford relief. Except for brief interruptions, 100 per cent oxygen was inhaled for five days without signs of pulmonary irritation. It is interesting that 100 per cent oxygen invariably aborted the attacks of paroxysmal ventricular tachycardia when quinidine therapy had failed. The therapeutic implication arising from this observation is obvious.

CASE 2.—A rancher aged 67, first observed July 16, 1938, had six hours previously, while eating, suddenly experienced dyspnea and a "constricting pain" in the left side of the chest. The pain became increasingly more severe and was accompanied by symptoms of mild shock. Two hours later one-half grain (0.03 Gm.) of morphine sulfate was administered with marked relief. He remained relatively comfortable and almost free from pain for two days. July 18, while using the bed pan, he was seized with excruciating retrosternal pain. Morphine sulfate, one-fourth grain, gave only partial relief. Marked dyspnea and symptoms of shock supervened. Oxygen (100 per cent) was employed by means of a B. L. B. mask. The striking reduction of pain and subsidence of dyspnea which followed were impressive. Oxygen was utilized for eight hours and then interrupted without recurrence of pain. Four similar attacks took place during the next two days when the patient attempted to use the bed pan. Each time the pain was alleviated almost immediately by 100 per cent oxygen. A B. L. B. mask was applied before the patient was allowed to use the bed pan during the next ten days. No further episodes ensued. Recovery otherwise was uneventful. Electrocardiographic tracings taken on the fourth day disclosed a posterior basal infarction.

The immediate subsidence of pain following the administration of oxygen was striking. Further, the prophylactic application of oxygen before necessary slight effort was permitted appears to have prevented the recurrence of pain and shock.

CASE 3.—A man aged 72, examined Nov. 12, 1938, had for one year noted dyspnea on effort. November 2 he had experienced a dull ache in both pectoral regions, the right shoulder and both elbows. This episode had lasted two hours. The following day he traveled 500 miles by airplane and felt no discomfort. During the four days prior to observation he experienced four attacks of bilateral pectoral pain with radiation to both elbows. November 11 a persistent aching pain developed in both elbows. During the night it became increasingly more severe and by morning intense pain was present in both pectoral regions and the elbows. The patient was brought directly to the hospital. No medication was administered. Complete relief of pain was induced by the administration of oxygen (100 per cent) by means of a B. L. B. mask. One hundred per cent oxygen was given continuously for two days, except for brief interruptions every three to four hours. Pain almost invariably recurred when the oxygen was interrupted but was promptly relieved when the treatment was resumed.

For three days from 50 to 60 per cent oxygen was given continuously and then discontinued without recurrence of pain. Electrocardiographic tracings on the fifth day disclosed the typical manifestations of a posterior basal infarction. The patient's progress was satisfactory until the fifteenth day, when a cerebral vascular accident with a resultant right hemiplegia occurred. Paralysis of the right arm and leg persists to date.

Case 3 illustrates the alleviation of intense pain by the administration of oxygen alone. Opiates were not used in the treatment of this patient.

CASE 4.—A mining engineer aged 64 had experienced no cardiac symptoms prior to the present illness. During a business conference Sept. 6, 1938, he was seized with a severe retrosternal pain which radiated into both pectoral regions and which was accompanied by symptoms of mild shock. One-fourth grain of morphine sulfate was administered prior to hospitalization, with slight relief. The injection was followed by protracted vomiting. The patient was placed in an oxygen tent with the concentration of oxygen at approximately 50 per cent. No relief of pain was obtained. The enclosure worried the patient and augmented his restlessness. One-third grain (0.02 Gm.) of pantopon (hydrochlorides of the alkaloids of opium, principally morphine) was given and was followed by nausea, protracted vomiting, accentuation of the pain and a greater degree of shock. The B. L. B. mask was applied with the oxygen concentration at 100 per cent. The relief of pain as well as the cessation of nausea, vomiting, dyspnea and shock occurred within fifteen minutes. Oxygen was administered constantly for forty-eight hours, except for brief intervals of from ten to fifteen minutes every three hours. He remained surprisingly comfortable during this time. On the second day a gallop rhythm, best heard over the apex, was noted. On the third day the apex rate fell to twenty-eight beats a minute. An electrocardiogram disclosed a complete auriculoventricular block together with the characteristic manifestations of a recent coronary thrombosis. In spite of continuous oxygen administration sudden circulatory collapse ensued and the patient died on the third day. Permission for necropsy was not obtained.

Case 4 illustrates the relief of pain with 100 per cent oxygen when administration of oxygen in a lesser concentration by means of the tent had failed. The exertion provoked by the protracted vomiting following the administration of morphine and pantopon may have contributed toward the fatal outcome.

CASE 5.—A minister aged 62 had suffered with angina pectoris for nine years. In the beginning the attacks were mild and consisted of a sense of choking accompanied by dyspnea on moderate exertion. Gradually the character of sensation changed to that of retrosternal pressure and later to a "viselike" constriction behind the sternum. The attacks were always precipitated by effort or excitement, lasted from one to ten minutes and were invariably relieved by rest. Occasionally the retrosternal distress was accompanied by pain in the left shoulder and elbow. Glyceryl trinitrate in doses of one one-hundredth grain (0.65 mg.) was always effective in affording relief. Fourteen months prior to observation he had been confined to bed for a period of seven weeks because of suspected coronary thrombosis. Electrocardiograms taken at that time showed definite T wave changes in leads 1 and 2 but were not conclusive for recent coronary thrombosis. For one year prior to observation the attacks of anginal pain became progressively more severe and were provoked by less effort or excitement. Though several attacks had lasted for as long as fifteen or thirty minutes, the majority were of less than ten minutes' duration.

When the patient was first seen, Jan. 4, 1939, he was confined to bed because even slight exertion or excitement occasioned severe anginal pain. He preferred to stay absolutely quiet in bed rather than take the repeated doses of glyceryl trinitrate necessary to permit even slight activity. Such trivial acts as shaving, eating, listening to an exciting radio program, bending to tie a shoe lace or defecation would incite a painful paroxysm. A B. L. B. oxygen apparatus was installed at the patient's bedside. Inhalation of 100 per cent oxygen brought either complete

relief or marked amelioration of the distress. The relief was more prompt and more complete than that afforded by glyceryl trinitrate and was unaccompanied by the unpleasant symptoms induced by the drug. Application of the mask prior to the execution of minor activities known to produce anginal pain served to prevent the paroxysms.

Angina pectoris of this severity offers a distressing problem to both the patient and the physician. Para-vertebral injection of alcohol was considered, but the procedure was refused by the patient. Sympathectomy was not urged because of the uncertainty of results and the relatively high mortality attending the operation in patients of his age. The administration of oxygen in high concentration added materially to the patient's comfort. Its use is to be recommended in similar cases presenting the extreme anginal syndrome.

COMMENT

Recently the mechanical theory of the origin of coronary pain advocated by Wenckebach⁷ has been reawakened by Herrmann⁸ and by Martin and Gorham.⁹ The majority of clinicians, however, adhere to the ischemic or anoxemic concept.¹⁰ According to the ischemic theory, impaired coronary circulation results in anoxemia of the myocardium and the accumulation of metabolites. These substances, particularly lactic acid, chemically irritate the receptors of the sympathetic afferent nerves with the reflex production of pain. The cessation of pain following the inhalation of 100 per cent oxygen in the cases reported lends further support to the anoxemic theory. Boothby¹¹ has pointed out that the administration of pure oxygen increases the oxygen content of arterial blood by from 10 to 15 volumes per cent. In cases of coronary thrombosis the myocardial anoxemia is evidently partially overcome by the delivery of hyperoxygenated blood through the collateral coronary circulation. In cases of coronary sclerosis with angina pectoris the mechanism is obvious.

The prompt relief of pain in each case of coronary thrombosis reported was dramatic. Relief was obtained within ten minutes after oxygen therapy was instituted. Invariably the apprehension, restlessness and dyspnea and the symptoms of mild shock were quickly controlled. The administration of 100 per cent oxygen is advocated when the pain is intense or is resistant to opiates.

Pulmonary irritation and even pneumonia have been produced in animals by the continuous inhalation of mixtures containing more than 70 per cent oxygen.³ For this reason many clinicians have discouraged the use of highly concentrated oxygen except for brief periods. I have noted no cases of pulmonary irritation in which 100 per cent oxygen has been employed. Interruption in oxygen therapy for from ten to fifteen minutes every three to four hours has been made in each case in order to prevent the possibility of pulmonary irritation. Boothby, Mayo and Lovelace¹² have recently reported the administration of 100 per cent oxygen to more than 800 patients without observing the slightest

evidence of pulmonary irritation. In the majority of their cases oxygen in this concentration was not administered continuously for more than forty-eight hours.

CONCLUSIONS

The administration of oxygen in high concentrations serves as an efficient method of relieving the intense pain which may accompany acute coronary thrombosis and as an important therapeutic adjunct in the symptomatic control of severe angina pectoris.

2202 West Third Street.

CONGENITAL ABSENCE OF THE GALLBLADDER

WITH PRIMARY CARCINOMA OF THE COMMON DUCT AND CARCINOMA OF THE LIVER

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PHILADELPHIA

Congenital anomalies of the liver and gallbladder are relatively rare. The importance of these structural defects is such that it is hoped more attentive observation will be directed toward them. A survey of the literature reveals ninety-six cases of congenital absence of the gallbladder, and this is frequently associated with stenosis and absence of the hepatic and common ducts. These anomalies are by no means incompatible with life. Normal liver function may be maintained under these anatomic handicaps.

Observations During First Admission

Date.....	9/5/37	9/6/37	9/7/37
Urine.....	Neg.	.....	Neg.
.....	80%	80%	
.....	4.72	4.72	
.....	20,600	10,500	
Polymorphonuclears.....	82%	80%	
Lymphocytes.....	18%	18%	
Mononuclears.....	.....	2%	
Blood Wassermann and Kline reactions....	.....	.....	Neg.
Spinal fluid.....	.....	.....	Cl. neg. W.
Blood sugar.....	.....	.....	90%
Blood urea nitrogen.....	.....	.....	0.013

The reports of thirty-one cases of congenitally absent gallbladder and cystic duct reveal the average age as 48 years. Thirteen patients with complete absence of all ducts and the gallbladder survived an average of seventy days. The logical deduction thus follows that the extent of congenital deficiency is in direct relation to the degree of disturbance of physiologic function.

Among congenital defects seen in man are:

1. The presence of two livers.
2. The absence of the gallbladder and all ducts or portions thereof.
3. A gallbladder and cystic ducts on the left side.
4. A bilobed gallbladder and variations in the lobulations of the liver.

Some of the lower animals which possess no gallbladder are interesting for purposes of study. These are the elephant, rhinoceros, deer, camel, horse, some rodents and a few families of birds and fish. The three forms which are available for embryologic investigation are the lamprey, pigeon and rat. No single

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7. Wenckebach, K. F.: *Toter Punkt*, "Second Wind" und Angina pectoris, *Wien. klin. Wchnschr.* 41:1-6 (Jan. 5) 1928.

8. Herrmann, G. R.: *Synopsis of Diseases of the Heart and Arteries*, St. Louis, C. V. Mosby Company, 1936.

9. Martin, S. J., and Gorham, L. W.: *Cardiac Pain; Experimental Study with Reference to Tension Factor*, *Arch. Int. Med.* 62:840-852 (Nov.) 1938.

10. Lewis, Thomas: *Pain in Muscular Ischemia: Its Relation to Angina Pain*, *Arch. Int. Med.* 49:713-727 (May) 1932.

11. Boothby, W. M.: *Oxygen Administration: Value of High Concentration of Oxygen for Therapy*, *Proc. Staff Meet., Mayo Clin.* 13:641-646 (Oct. 12) 1938.

12. Boothby, W. M.; Mayo, C. W., and Lovelace, W. R., Jr.: *One Hundred per Cent Oxygen; Indications for Its Use and Methods of Its Administration*, *J. A. M. A.* 113:477-482 (Aug. 5) 1939.

etiologic factor is found to account for the absence of the gallbladder either in human beings or in lower animal species.

For absence in the human being, according to Gross,¹ there are two explanations:

1. The hepatic diverticulum arises from the foregut to form the liver, extrahepatic ducts and gallbladder. The gallbladder and cystic duct normally originate from this diverticulum as an outpocketing, but failure of the latter development would cause complete absence of the gallbladder and cystic duct.

2. The hepatic, cystic and common ducts, as well as the gallbladder, are hollow structures in early embryonic life. Later their lumens are temporarily obliterated, during the so-called solid phase through which all these structures pass. When the gallbladder bud does not resolve from its embryonic phase, there is no development of a gallbladder from the hepatic diverticulum and consequently this structure fails to develop.

Many unsatisfactory explanations are offered such as fetal peritonitis or syphilitic peritonitis in early life. It is claimed by some to be associated with harelip, cleft palate and anomalies of the ears and hands. There is no scientific proof for any of these explanations, though the prevailing opinion is that congenital defects are apt to be multiple.

Rolleston and Hayne² suggested unknown toxins from the mother as the causative factor of biliary congenital anomalies. They expressed the belief that noxious metabolites are conveyed to the fetal liver, where they set up a mixed portal and biliary cirrhosis, with a descending obliterative cholangitis analogous to obliterative appendicitis. In support of their theory are several instances of parents having more than one child so affected.

Lintz³ emphasized the presence of B bile on three occasions obtained with the Lyon-Meltzer technic in a case of absent gallbladder and ducts. The origin of this bile must have been hepatic. The common and hepatic ducts were present and no dilatation of these or of the bile canaliculi was found. One would thus assume that these did not function as storage centers

Walters feels that, clinically, absence of the gallbladder is not of particular moment except when it plays a part in the etiology of pancreatic disease. He states that Bower⁴ is the only writer who gave this subject sufficient attention, as he found that the gross appearance was mentioned in only 20 per cent of the collected

Observations During Third Admission

	1937		1938				
Date.....	12/30	12/31	1/4	1/17	1/24	2/5	2/18
Urine.....	Urobilin Bile + Alb. 0 Sugar 0	.....	.....	.....	Alb. +	.....	.....
Hemoglobin.....	.....	.....	.....	.....	.....	49%	.....
Red blood cells.....	.....	.....	.....	.....	.....	2.4	.....
White blood cells.....	.....	.....	.....	.....	.....	17,600	.....
Polymorphonuclears.....	.....	.....	.....	.....	.....	94%	.....
Lymphocytes.....	.....	.....	.....	.....	.....	6%	.....
Blood Wassermann and Kline reactions.....	Neg.	.....	.....	.....	.....	.....	.....
Blood sugar.....	68%	.....	.....	.....	.....	.....	.....
Blood urea nitrogen.....	0.008	.....	.....	.....	.....	.....	.....
Cholesterol.....	.....	860	.....	448	440	350	.....
Esters.....	.....	59	.....	60	78	20	.....
Esters, per cent.....	.....	7%	.....	13%	18%	11%	.....
Icterus index.....	140	.....	.....	120	117	120	86
Phosphatase.....	24 Un.	.....	.....	.....	.....	.....	.....
Phosphorus.....	3.2	.....	.....	.....	.....	.....	.....
Takata-Ara test.....	.....	Neg.	.....	.....	.....	.....	.....
Lipase.....	.....	1 cc. 1/20 N. Na OH	.....	.....	.....	.....	.....
Total proteins.....	.....	6.4	.....	4.9	4.7	.....	4.2
Albumin.....	.....	4.1	.....	3.1	2.7	.....	2.3
Globulin.....	.....	2.3	.....	1.8	2.0	.....	1.9
Ratio.....	.....	1.8	.....	1.7	1.4	.....	1.2

cases. In one instance the head of the pancreas was missing; in three cases the pancreas was atrophic. In the remaining cases the organ was thickened or indurated.

In a series of 7,919 necropsies, Smith and Ball⁵ found six cases of congenital absence of the gallbladder. They stressed the importance of determining its absence by means of cholecystographic studies. It has been their feeling, as well as ours, that any damage to the hepatobiliary system resulting from congenital defects may serve to augment the possibility of a fatal Heyd hepatoreneal syndrome. The hemorrhagic tendencies due to vitamin K deficiency and absence of bile in the stool further diminish the probability of a favorable prognosis and warrant careful thought before surgical treatment is attempted.

Croswell⁶ pointed out the importance of jaundice, white greasy stools, and enlargement of the liver and spleen associated with these congenital anomalies. He stated the opinion that the absence of the bile ducts and gallbladder exists more frequently than is recognized.

Compensatory dilatation of the bile canaliculi existed in the case here reported. Dilated bile ducts often, but not constantly, substitute as storage deposits when the gallbladder is absent. The literature fails to reveal conclusive evidence regarding this occurrence. Just what effect the back pressure of the bile would have relative to the development of cirrhosis is not known. Cirrhosis of the liver was diagnosed twenty-nine times in forty cases, in 45 per cent of the hypertrophic and in 55 per cent of the atrophic type. Unfortunately, pathologic descriptions are wanting in many of the reported cases. It is believed that our case report is the only one thus far of associated carcinoma with absence of the gallbladder and cystic duct.

Observations During Second Admission

Date.....	10/14/37	10/18/37	10/20/37	10/22/37	10/25/37	10/27/37
Urine.....	Alb. + Bile pig.	.....	Alb. 2+ Gran. casts	.....	.....	.....
Hemoglobin.....	53%	.....	.....	.....	.....
Red blood cells.....	5.55	.....	.....	.....	.....
White blood cells.....	11,700	.....	.....	.....	.....
Polymorphonuclears.....	74%	.....	.....	.....	.....
Lymphocytes.....	22%	.....	.....	.....	.....
Monocytes.....	4%	.....	.....	.....	.....
Blood sugar.....	89%	.....	.....	.....	.....
Blood urea nitrogen.....	0.011	.....	.....	.....	.....
Cholesterol.....	484	.....	494	.....	.....
Esters.....	90	.....	86	.....	.....
Esters, per cent.....	18%	.....	17%	.....	.....
Icterus index.....	92	90	.....	125	.....
Van den Bergh.....	Immed.	Immed.	.....	.....	.....	.....
Phosphatase.....	15.8 Un.	.....	15 Un.
Inorganic phosphates.....	3.2	.....	.....

for bile. The presence of gallbladder bile in this instance throws doubt on the origin of this bile fraction. The Graham-Cole test and necropsy precluded the possibility of an intrahepatic gallbladder. His article substantiates the value of cholecystography and confirms the primary source of gallbladder bile.

The relation of the pancreas to gallbladder anomalies is infrequently mentioned in the literature. G. B.

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2. Rolleston and Hayne: Brit. M. J. 1: 758, 1901.
3. Lintz, William: Am. J. M. Sc. 173: 682 (May) 1927.
4. Bower, John O.: Ann. Surg. 88: 80 (July) 1928.
5. Smith, T. C., and Ball, R. T.: Kentucky M. J. 27: 252 (June) 1929.
6. Croswell, C. V.: J. Tennessee M. A. 27: 316 (Aug.) 1934.

REPORT OF CASE

First Admission.—F. W., a white man aged 45, was a patient in the Philadelphia General Hospital in the service of Dr. Jump, from Sept. 5 to 14, 1937. He was wont to indulge in occasional alcoholic sprees. After imbibing too freely he was seized with vomiting of a bile stained material, with right upper abdominal pain radiating over the entire posterior part of the thorax. Vomiting continued several days after admission (until September 5). Recovery was uneventful, and physical examination revealed nothing of importance except the absence of jaundice. The only symptoms of significance in the past history were complaints of indigestion for two years, which could be attributed to heavy drinking and smoking. A questionable history of gonorrhea and syphilis fifteen years before was elicited. A diagnosis of cholecystitis and enteritis was made.

Second Admission.—The patient was in the service of Dr. L. K. Ferguson from Oct. 13 to Nov. 9, 1937. He had enjoyed good health for several days after discharge. Souring of food then commenced, with postprandial burning. The ninth day after he left the hospital, jaundice appeared with clay colored, putty-like stools and dark urine. Concurrently with the initial signs of jaundice the digestive complaints entirely disappeared. The changes noted in physical condition as compared with his

second admission. During his latter stay in the hospital he was operated on three times, in stages. On January 11, exploratory laparotomy revealed massive adhesions about the area of the gallbladder fossa. Neither the gallbladder nor the common duct could be identified. The possibility of an intrahepatic gallbladder was considered and the liver was needled. The appearance of pure bile prompted the insertion of a tube along the course of the needle. This bile drainage continued in small amounts until the patient's demise. On January 26 the liver was marsupialized. On January 31 a transhepatic cholangiotomy was performed, and on February 3 and 4 respectively mass ligatures of the muscle were necessitated by hemorrhage. Despite supportive treatment of all kinds the patient's course was progressively downward until death on February 23.

Laboratory Interpretations.—The clinical opinion was that the gallbladder was embedded in the liver. Support of this opinion was apparently furnished by the flow of bile which followed needle puncture of the liver and tube drainage.

The laboratory data on the first admission suggested an inflammatory process based on the increased total white count and the degree of granulocytosis. On the second admission this persisted, though to a smaller degree. The icterus index confirmed the evident jaundice, but the low percentage of cholesterol esters and the increase in phosphatase units indicated structural liver damage.

During the third admission, despite the marked fluctuation in cholesterol the esterified fraction remained consistently low and the phosphatase units had further increased. Total proteins fell progressively. The albumin-globulin ratio, always lower than normal, continued to fall but at no time became inverted, as is the rule in well marked cases of Laënnec's cirrhosis, although there was a definite history of alcohol addiction. The Takata-Ara test was negative, unlike that in the usual case of hepatic cirrhosis. The pressure factor, responsible for the high icterus index, was relieved by the operative procedure; hence the definite and gradual lowering of the index during the third admission.

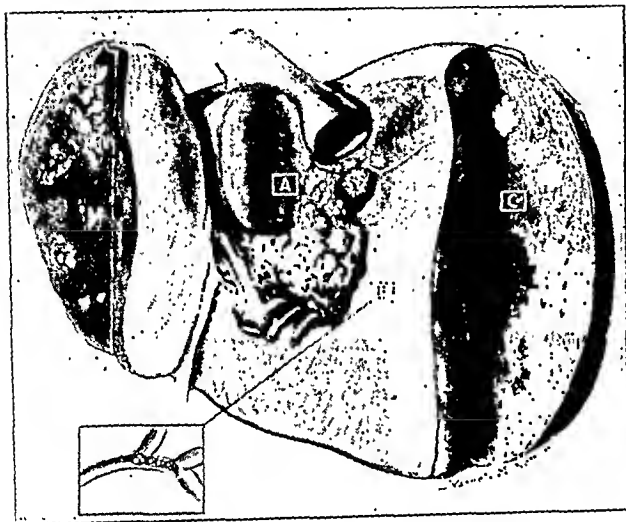
In a case of this character, with so much structural damage, it was scarcely to be expected that vitamin K and bile or sodium cholate and vitamin K would prove of value in lessening hemorrhage. Hemorrhage was considerable, and all efforts to control it were ineffective. In the absence of further clinical exploration, the high phosphatase and low cholesterol esters were regarded as evidences of structural liver damage, probably due to carcinoma of the liver.

Pathologic Examination.—Gross Observations: Body deeply jaundiced, emaciated; kidneys, cholemic nephrosis; heart, myocardial degeneration; aorta, moderate atherosclerosis; gastrointestinal tract, mesenteric thrombosis of terminal ileum; liver and bile ducts, carcinoma, chronic inflammatory stenosis of common duct with carcinomatous obstruction; dilatation of intrahepatic bile canaliculi; multiple liver abscesses; pancreas, parenchymatous degeneration.

Histologic Observations: Heart, myocardial degeneration; lungs, chronic passive congestion, bronchopneumonia; spleen, chronic passive congestion; kidneys, cholemic nephrosis; ileum, chronic passive congestion; liver, secondary adenocarcinoma, necrosis, venous thrombosis; adrenals, lipid depletion, bile pigmentation, terminal thrombosis of central veins.

Liver: The weight was 2,500 Gm. The organ was enlarged and dark green, the upper anterior aspect of the left lobe presenting a number of yellow-gray excrescences from 5 to 10 mm. in diameter. On section they were found in the substance as well, appearing as abscesses filled with thick, reddish yellow pus. The duct radicles throughout were considerably dilated, and in the midanterior portion of the right lobe was a cavity about 4 by 4 by 8 cm. lined with red granular tissue. It communicated with the right hepatic duct just above a point of obstruction. The duct contained five sandy calculi. Elsewhere in the right lobe were several patches of firm white tumor, from 10 to 15 mm. in diameter, which appeared to encircle portal triads.

Bile Ducts: The ampulla of Vater was located in the second portion of the duodenum in about the normal position. A probe passed up the common duct encountered obstruction at the liver hilus on dissecting upward. The common duct was



Liver: A, primary carcinoma of the common duct; B, cholangiectatic area containing sandy calculi; C, foci of carcinomatous suppuration.

state on the first admission were the marked icterus, drop of blood pressure from 146 systolic, 84 diastolic to 86 systolic, 54 diastolic and a diminution of pulse rate from 100 to 56, though a slow pulse is not a necessary concomitant of jaundice. A preoperative diagnosis of extrahepatic biliary obstruction with cancer of the head of the pancreas or a silent stone in the common duct was made.

The liver, which before was not palpable, now extended 2 cm. below the costal margin. A duodenal drainage showed no sign of bile after two stimulations with 40 cc. of 50 per cent magnesium sulfate solution. Dr. L. K. Ferguson performed a laparotomy and found a dense infiltration with vascular adhesions about the fossa of the gallbladder. The gallbladder and common duct could not be identified. A diagnosis was made of carcinomatous obstruction above the junction of the common and cystic ducts. It was impossible to identify any of the structures in or about the gallbladder fossa.

Third Admission.—The patient was in the service of Dr. W. E. Robertson from Dec. 28, 1937, to Jan. 10, 1938, when he was transferred to the service of Dr. J. O. Bower. He died February 23. Jaundice had been present four months; the urine was bile colored, the stools were soft and yellow to clay colored, there was marked pruritus, and weight loss had been progressive. There had been persistent morning nausea with weakness and poor appetite. Examination denoted gradual failure, with blood pressure of 90 systolic, 50 diastolic. The abdomen was tense with a questionable mass in the right upper quadrant. The size of the liver corresponded to that of the

found to be normal in its lower portion, but just at its bifurcation the lumen was obstructed and the duct wall merged with a nodular mass of firm white tissue with greenish yellow tinge. On section the tissue was found to fan out into liver substance over a radius of about 3 cm. No cystic duct was located.

Gallbladder: None was found, and there was no depression at its usual site.

SUMMARY

Congenital anomalies of the liver and gallbladder, although rare, are of sufficient importance to be included in a differential diagnosis of liver disease.

Ninety-six case reports are extant, and it is believed that such anomalies are more frequent than is generally supposed. A case of congenital absence of the gallbladder associated with primary carcinoma of the common duct was observed. No definite grouping of signs or symptoms can be formulated to facilitate diagnosis. This is usually made by the surgeon or pathologist.

327 South Seventeenth Street.

CANCER OF THE BREAST POSSIBLY INDUCED BY ESTROGENIC SUBSTANCE

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Estrogenic substances are now administered by physicians in a wide variety of physiologic and pathologic states. They are given to relieve menopausal symptoms, to suppress lactation, for gonorrheal vaginitis in children and for senile vaginitis and pruritus vulvae. They have been advocated for amenorrhea, abnormal uterine bleeding, dysmenorrhea, sterility, habitual abortion, chronic mastitis, painful breasts, hypertension, involutional melancholia, epilepsy, eclampsia, vomiting of pregnancy, menopausal arthritis, migraine, hemophilia, senile deafness, atrophic rhinitis and acne.

New and more potent preparations of the estrogens are being made available to the medical profession for these therapeutic uses. In addition, the public has been purchasing in drug stores and beauty shops a face cream which contains estradiol. Moore¹ has shown that this hormone is absorbed through the skin.

This widespread use of the estrogenic substances is, in the light of our knowledge of their possible carcinogenic effect, a matter for serious consideration.

It is now six years since Lacassagne's² important discovery that carcinoma of the breast can be induced by estrone benzoate in male mice belonging to a strain of animals the females of which frequently develop the disease. This discovery has been confirmed in several laboratories, including our own. Lacassagne,³ Loeb⁴ and others have presented evidence that the estrogens likewise induce carcinoma of the breast in female mice. It has recently been stated by Geschickter⁵ that estrogens will induce carcinoma of the breast in female rats.

While the data on this crucial point are not as yet adequate to prove it definitely, they are certainly suggestive.

It would have been desirable to decide this important question in the laboratory before human beings were exposed to the perils of an overdose of estrogen. These hormones have been so widely used clinically, however, that evidence as to their action on the human breast is now becoming available. The stimulus to breast growth which the estrogens exert is as evident in human beings as in laboratory animals. We have observed striking enlargement of the breasts of a number of women during the course of administration of progynon B (estradiol benzoate). MacBryde⁶ has recently described this phenomenon.

Opportunities for study of the histologic features of breast growth induced in women by estrogens have been few. Our experience has been limited to four cases. In three of these the tissue available for study was adequate. In one of these cases there was only dilatation of the ducts. In both of the others there was also histologic evidence of marked stimulation of the epithelium of the breast. The gland fields were large and numerous. There were areas in which small ducts multiplied to give the picture of adenosis. There were many dilated ducts. Some formed small cysts filled with amorphous debris. Others were partly, or entirely, filled with proliferating epithelium. These changes resemble, in a general way, the histologic changes observed in the mammary glands of mice after treatment with estrogens. In mice, multiplication of the acini and dilatation of the ducts predominate. Intraductal proliferation is infrequent.

It can therefore be said that the effect of the estrogens on the mammary gland seems to be much the same in

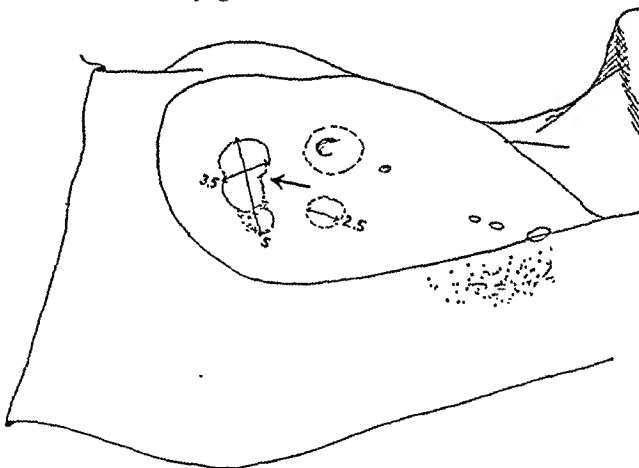


Fig. 1.—Sketch of the physical appearance in the left breast on Dec. 6, 1937. Arrow points to retraction sign.

human beings as in mice. Whether or not these hormones induce carcinoma of the breast in human beings can be determined only by the careful follow-up of women given large amounts of the estrogens over a prolonged period. Allaben and Owen⁷ have reported a case in which breast cancer developed following the administration of a comparatively small amount of the substance.

In one of our patients carcinoma of the breast has developed. The circumstances concerning the appearance of the tumor in this patient are fully known, so

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2. Lacassagne, A.: Apparition de cancers de la mamelle chez la souris mâle, soumis à des injections de folliculine, *Compt. rend. Acad. d. sc.* **195**: 630 (Oct. 10) 1932.

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6. MacBryde, C. M.: The Production of Breast Growth in the Human Female, *J. A. M. A.* **112**: 1045 (March 18) 1939.

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that the case history is, we believe, of extraordinary interest and significance. We report it in detail.

REPORT OF CASE

History.—A white woman aged 47, unmarried, was admitted Dec. 7, 1937, to the Presbyterian Hospital with masses in the left breast.

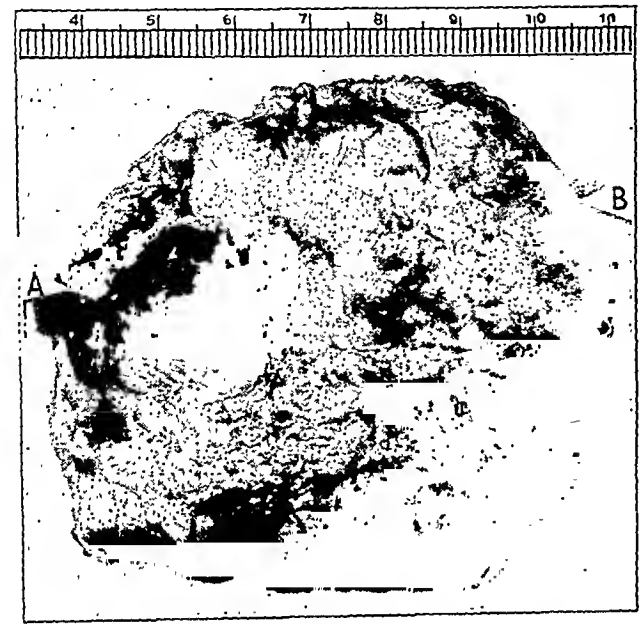


Fig. 2.—Segment of breast, including both tumors, excised for biopsy on Dec. 8, 1937. A, cyst; B, carcinoma.

Her mother had had a radical mastectomy for carcinoma of the breast eighteen years before and is living and well. A sister had had one breast removed. We do not know the diagnosis. Another sister died of tuberculosis. A third sister died

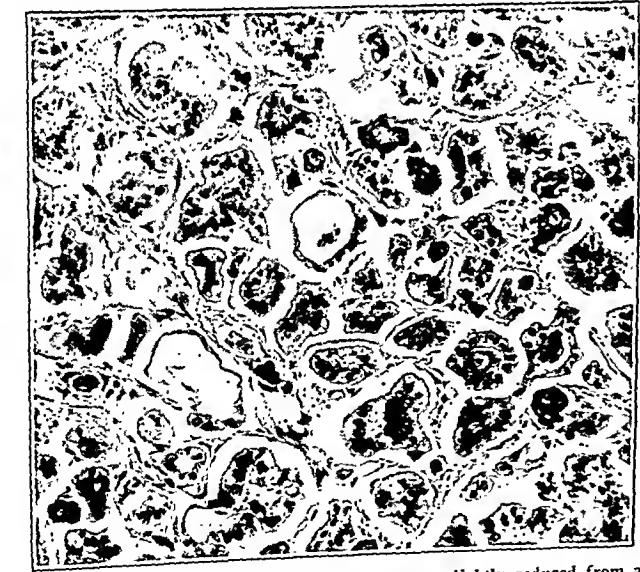


Fig. 3.—The primary carcinoma in the breast; slightly reduced from a photomicrograph with a magnification of 110 diameters.

of meningitis. A brother was killed in the war. Her father died of carcinoma of undetermined origin.

She had had various infectious diseases, none of which had any apparent relationship to the present complaint. Her menses began at 15, occurred every four weeks and lasted five or six days. They were always accompanied by headaches. During 1924 and 1925, when she was 33, she began to have metrorrhagia. Although the amount of flow was slight, she had two

or three periods each month. They were accompanied by severe headaches beginning several days before each period.

In 1927 menorrhagia and metrorrhagia became so disturbing that curettage and ventral suspension were done. The uterus was large, engorged and completely retroverted. Following this operation her periods were regular and less profuse.

Her premenstrual headaches became so severe in 1929 that she was given estrogenic substance by mouth over a period of three months. The preparation used was progynon DH in the form of pills, each containing 0.0417 mg. of estradiol. The dose was one pill daily during the week preceding menstruation. It may be supposed that this therapy had little or no effect, for it is known that this preparation given by mouth in this dosage is relatively inert. The treatment did not relieve her symptoms.

In 1933, when she was 44, she was thought to have regional ileitis. She was given roentgen treatments to a 15 by 15 cm. field in the right lower quadrant. A total of 336 roentgens was given in four doses at weekly intervals during April 1935. The factors were 200 kilovolts, 50 cm. distance, 25 milliamperes, 0.5 mm. of copper and 1 mm. of aluminum filters. Following these treatments her menses ceased. She had frequent and

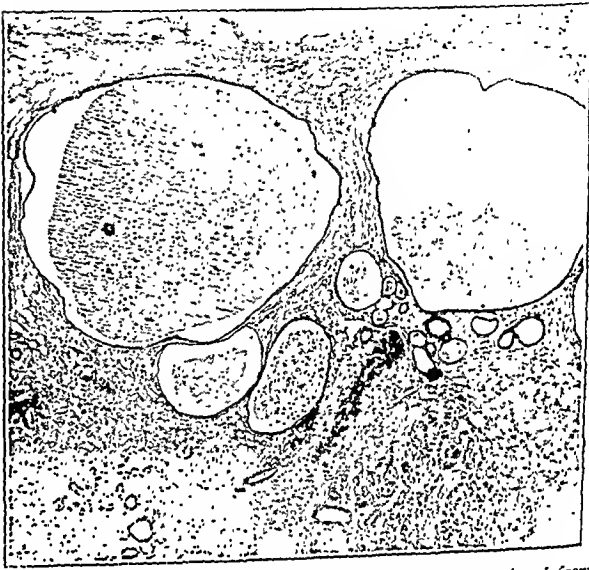


Fig. 4.—Dilatation of ducts to form small cysts; slightly reduced from a photomicrograph with a magnification of 10 diameters.

severe hot flashes, nausea and severe headaches. To combat these symptoms injections of progynon B (estradiol benzoate) were begun September 16. A dose of 0.33 1/2 mg. in sesame oil

Estrogenic Therapy

Year	Month	Commercial Preparations of Hormone	Method of Administration	Each Dose, Mg.	Total Dose, Mg.
1929	3 months	Progynon DH	By mouth	0.047	0.575
1935 and 1936	January to April	Progynon B	21 injections	0.722	5.069
1937	January	Progynon B	7 injections	0.333	2.331
1937	February	Progynon B	2 injections	1.66	3.290
1937	February	Progynon B	6 injections	0.333	1.998
1937	March	Progynon B	3 injections	1.66	4.960
1937	April	Progynon B	5 injections	1.66	8.290
1937	May	Progynon B	3 injections	1.66	4.960
1937	June	Progynon B	6 injections	1.66	9.960
1937	July	Progynon B	8 injections	1.66	13.280
1937	August	Progynon B	2 injections	1.66	3.290
1937	September	Progynon B	7 injections	1.66	11.620
1937	October	Progynon B	3 injections	1.66	4.960
1937	November	Progynon B	5 injections	0.333	1.665
1937	December	Progynon B	1 injection	0.333	0.333
Total dose of progynon B					79.667

was given intramuscularly each week. After the first few injections of the substance she noticed enlargement of her breasts. Her hot flashes and her nervousness were much improved. On October 22 and 23 she had a slight bloody dis-

charge, which probably represented returning menstruation. In December she had a regular period. The estrogen therapy was omitted during November and December, but in January 1936 her menopausal symptoms became so severe that it was begun again. Her symptoms then improved, and from February on her periods were regular. From Sept. 16, 1935, to April 20, 1936, she was given a total of 8 mg. of estradiol benzoate, and she entered the hospital for two weeks. At this time one of us (H. A.) examined her breasts with care and noted that they were symmetrical and did not contain any tumor masses. The mammary lobules were somewhat more readily palpable than in the average breast. There was no enlargement of the axillary lymph nodes.

In September metrorrhagia again developed, the patient having two periods of five days each of profuse bleeding. During October and November she did not menstruate at all and her menopausal symptoms returned with increased severity. She had as many as one hot flash an hour, and her headaches

October she flowed from the 7th to the 10th. During November and December she had no periods.

Present Illness.—About the middle of November, that is, two or three weeks before her examination on December 2, she noticed a lump in the outer lower portion of the left breast. This had not changed appreciably since she detected it.

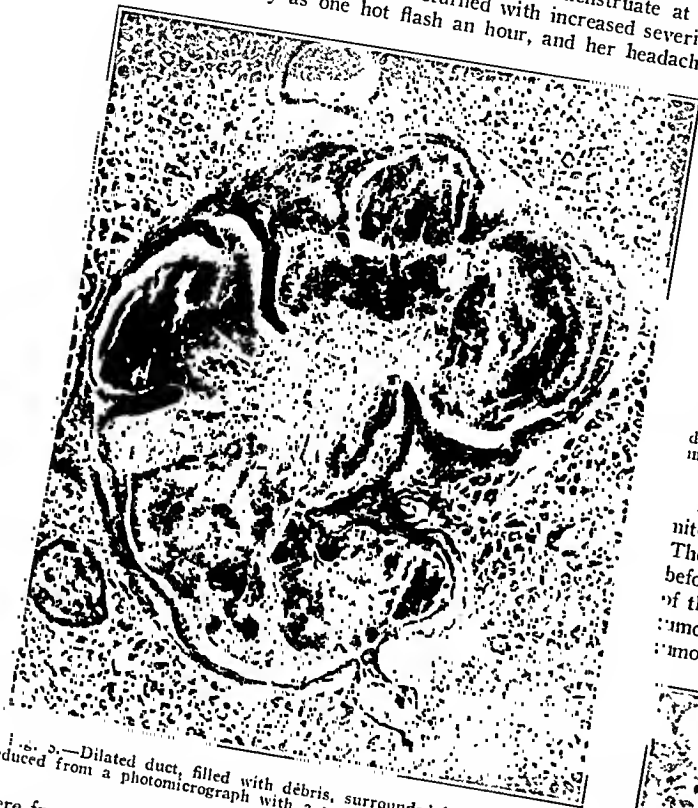


Fig. 5.—Dilated duct, filled with debris, surrounded by tumor; slightly reduced from a photomicrograph with a magnification of 10 diameters.

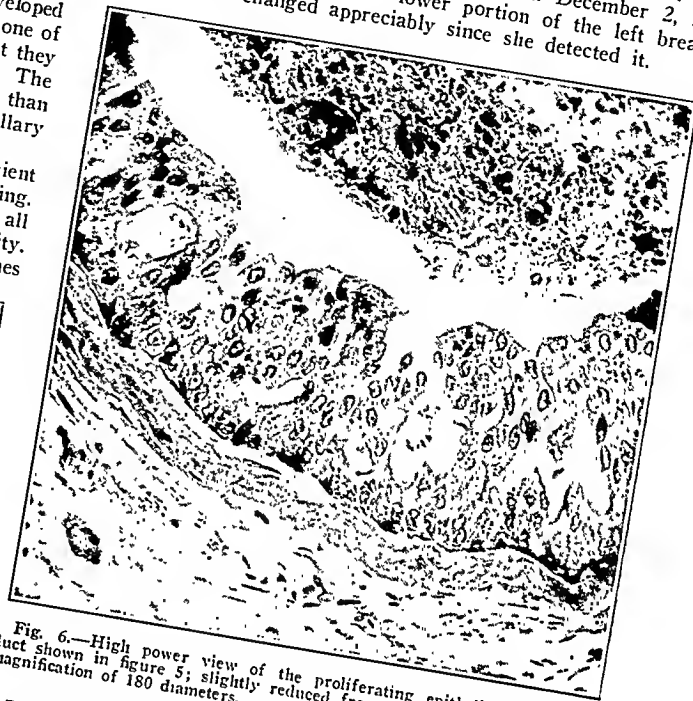


Fig. 6.—High power view of the proliferating epithelium lining the duct shown in figure 5; slightly reduced from a photomicrograph with a magnification of 180 diameters.

Physical Examination.—Both breasts were full, having definitely enlarged during the preceding year of estrogen therapy. There were palpable lobules, which were definitely thicker than before, throughout both of them. In the outer lower quadrant of the left breast, however, there were two definite and separate tumors (fig. 1). The larger measured 3.5 by 5 cm. The smaller tumor, which was slightly cephalad to the larger one, measured

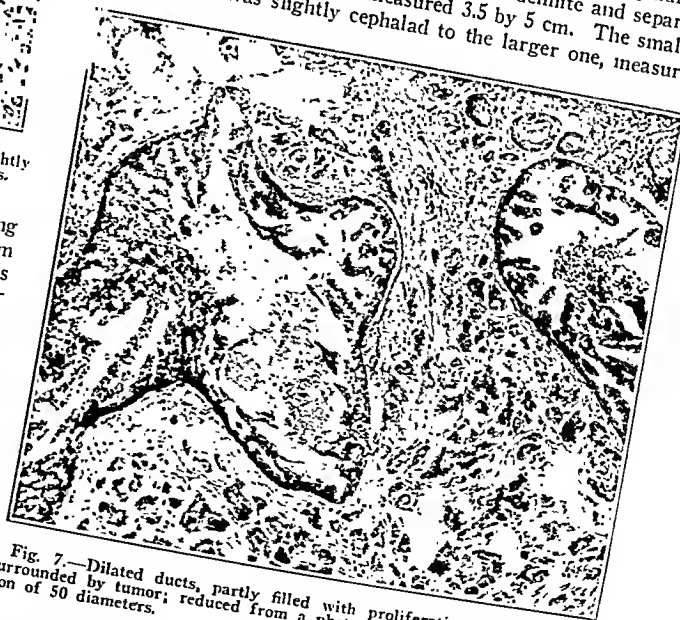


Fig. 7.—Dilated ducts, partly filled with proliferating epithelium and surrounded by tumor; reduced from a photomicrograph with a magnification of 50 diameters.

were frequent and severe. She had night sweats and increasing "shakiness." Neuritis developed in the neck, shoulder and arm on the right side which was so severe that in December she was admitted to the hospital for study. Again at this time her breasts were examined and no tumor masses were found. Because of the increasing severity of the menopausal symptoms it was decided at this time by gynecologic consultants that x-ray sterilization should be done. In January 1937 she was given 600 roentgens to each of two 15 by 20 cm. pelvic fields. The factors were 200 kilovolts, 25 milliamperes, distance 50 cm., 0.5 mm. of copper and 1.25 mm. of aluminum filters.

The progynon B therapy was now begun again and was given from January to December 1937 in large doses, as shown in the accompanying table.

After each of the 1.66 mg. doses the patient complained of headache and nausea and noted swelling of her breasts. She had no period in January 1937 but had spotting on February 2 and a normal period from March 3 to 10. In April there was spotting on the 23d and 24th. In May there was a slight flow on the 20th and 21st and from the 27th to the 30th. In June she had a period which lasted from the 28th to the 30th. There was no period in July, but in August she flowed from the 4th to the 8th. In September her period again passed, but in

2.5 cm. in diameter. The larger mass did not cast a dense shadow on transillumination, but it did cast a slight shadow. The disturbing feature was that between the two tumors there was a perfectly definite retraction sign which was elicited when the breast was moved upward and outward. This was not a "false" retraction sign; it was a "true" one. There was no

other assignable cause for it such as trauma or infection. It meant that the breast had to be considered carcinomatous until proved otherwise.

There was a large lymph node in the right axilla, and the lymph nodes in the left axilla were large and multiple. Those nearer the breast were smaller than those higher up in the axilla.

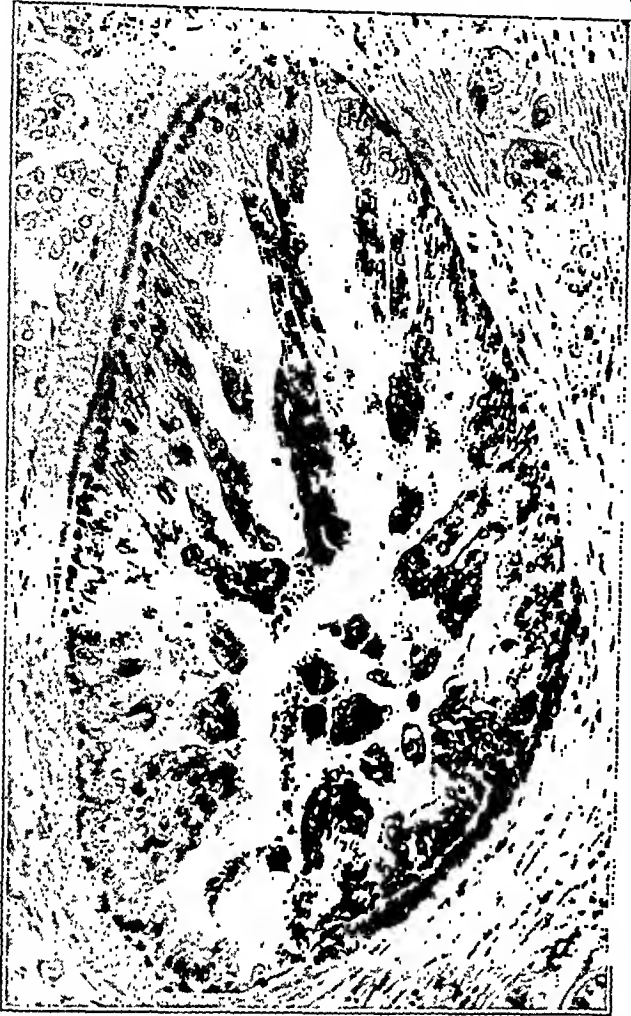


Fig. 8.—Papillary projections, without cores of connective tissue, filling a dilated duct; slightly reduced from a photomicrograph with a magnification of 120 diameters.

Operation.—On December 8 the patient was prepared for a radical mastectomy and the outer lower segment of the left breast, including the two tumors, was excised. This was a mass of mammary tissue measuring 9 by 7 by 2.5 cm. It was cut through its greatest diameter and two separate lesions were disclosed, as shown in figure 2. The larger tumor was a rounded cyst filled with thin reddish fluid and lined with smooth glistening epithelium. It measured 2.5 cm. in diameter. The smaller tumor lay at a distance of 2 cm. from the edge of the cyst. It was a stellate area of carcinoma, the cut surface of which was firm and grayish white with yellowish gray streaks and points in it. It measured 1.8 by 1 by 1 cm. A frozen section confirmed the gross diagnosis. A radical mastectomy was then done. On Dec. 29, 1939, the patient was apparently quite well.

Pathologic Examination.—Gross: The specimen consisted of the remainder of the mammary gland together with an ellipse of the overlying skin, measuring 13 by 19 cm., and the pectoral muscles and axillary contents. The breast was cut into many thin slices. The mammary tissue was more abundant and more diffuse than normal, being distributed widely throughout the perimammary fat. Scattered throughout the breast tissue were innumerable small cysts, or rather dilated ducts, which varied from 1 to 3 mm. in diameter and were filled with cloudy fluid. In the tissues surrounding the tumors excised from the outer

lower quadrant of the breast there was no gross evidence of carcinoma. On the deep surface of the breast, in its middle portion, there was a firm, encapsulated tumor 1 cm. in diameter, which on section had the pinkish gray fibrous appearance of a fibro-adenoma. The nipple and the ducts beneath it were grossly normal.

The axillary contents were ribboned, and a total of nine lymph nodes, varying between 0.5 and 2 cm. in diameter, were found. The smallest of these appeared to be normal, but all the larger nodes appeared to contain metastases. Sections of many different areas in the breast were fixed in Zenker's fluid.

Microscopic: The sections through the primary tumor showed a well differentiated carcinoma, the tumor cells being everywhere arranged to form small, irregular acini (fig. 3). The individual tumor cells were of the so-called apocrine type, being small and columnar with remarkably regular nuclei and prominent acidophilic cytoplasm. Mitoses were infrequent.

The mucicarmine stain failed to show any pink mucicarmophilic material in the cytoplasm of the tumor cells or in the lumens of the glands which they formed. The lumens of the glands, however, often contained concentrically ringed, calcified, hyaline concretions identical with the psammoma bodies seen, for example, in dural endothelioma or carcinoma of the ovary. These psammoma bodies were more frequent than we have ever before seen them in carcinoma of the breast.

The tumor elicited very little reaction in the nonepithelial elements of the breast. The connective tissue stroma was not much increased in density. The masses of tumor cells lay scattered loosely throughout it and infiltrated the fat in the breast. Occasional foci of lymphocytes were seen, particularly in the vicinity of dilated ducts.

The sections through the tumor area showed two other important features. The first of these was the dilatation of ducts to form small cysts lined with low cuboidal epithelium and filled with debris which sometimes contained leukocytes and foam cells (fig. 4). The second feature was the marked degree of proliferation of the lining epithelium within the ducts. The largest of these dilated ducts, like the one shown in figure 5, were lined with from two to six layers of cylindric cells thrown up into irregular, low papillary folds. Figure 6 shows this kind of proliferation under high power magnification. In smaller



Fig. 9.—Papillary projections, with cores of connective tissue, filling a dilated duct; reduced from a photomicrograph with a magnification of 100 diameters.

ducts the papillary infoldings were higher, more or less completely filling the lumens of the ducts, as shown in figure 7. Sometimes these proliferating lining cells formed long, slender papillae without any cores of connective tissue (fig. 8). In other ducts the papillae were thick and had well developed cores of connective tissue (fig. 9). Some of the ducts were more solidly filled with proliferating epithelium in an adenoid arrange-

ment, as shown in figure 10. All the cells proliferating within the ducts had the same general appearance as the cells of the carcinoma outside the ducts. They had the same rather small nuclei and prominent acidophile cytoplasm.

A section taken at a distance of 2 cm. from the edge of the carcinoma also showed small groups of carcinoma cells infiltrating the mammary fat. When these groups of carcinomatous acini lay isolated in the loose connective tissue of the breast their resemblance to normal small ducts lined by the apocrine type of epithelium was striking.

Six different blocks of tissue, taken at a distance of 3 cm. from the edge of the tumor, also showed carcinoma. Here too there were many cysts formed by dilatation of ducts.

A section through the breast tissue deep to it showed that the dilatation of ducts and intraductal proliferation, noted in the vicinity of the tumor, were equally marked in the middle of the breast. One of these sections showed a cyst which was at least 0.5 cm. in diameter. Immediately adjacent to it there was a very large duct solidly filled with proliferating epithelium (fig. 11).

A section from the lower inner quadrant of the breast showed a moderate degree of dilatation of small ducts, in some of which there was epithelial proliferation.

A section from the lateral midportion of the breast showed marked dilatation of the ducts to form the so-called apocrine

COMMENT
The features of this case that make it valuable evidence concerning the possible carcinogenic effect of estrogenic substance are the following:
1. The patient had a familial predisposition to cancer, particularly cancer of the breast. Her father died of

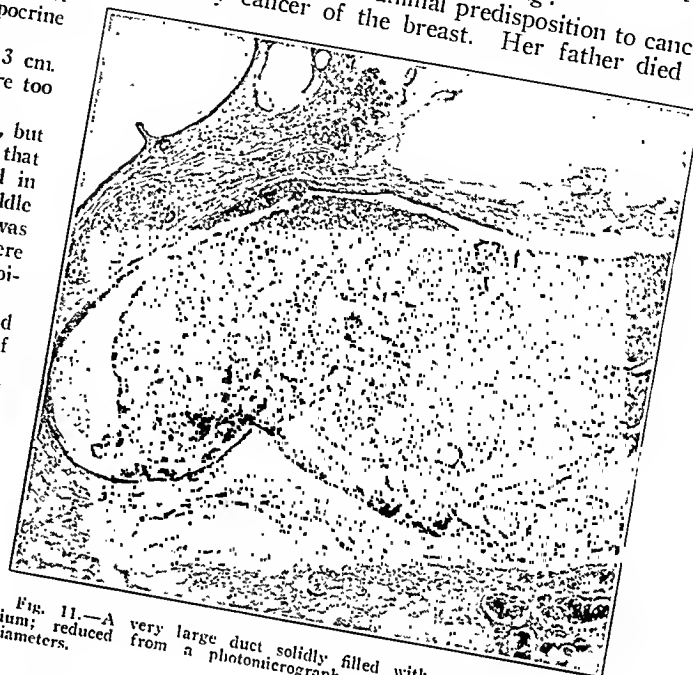


Fig. 11.—A very large duct solidly filled with proliferating epithelium; reduced from a photomicrograph with a magnification of 15 diameters.

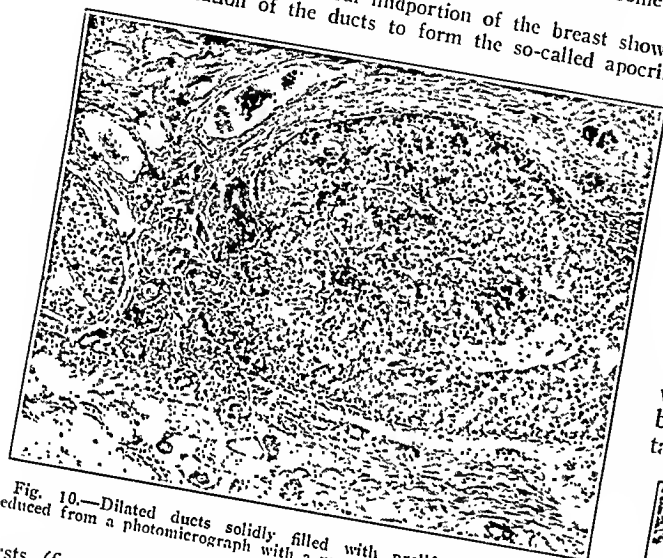


Fig. 10.—Dilated ducts solidly filled with proliferating epithelium; reduced from a photomicrograph with a magnification of 50 diameters.

some form of internal cancer, while her mother had had breast cancer and a sister who had lost a breast was suspected of having had cancer. We believe that both in the mouse and in man heredity plays an important part in the etiology of breast carcinoma. Its

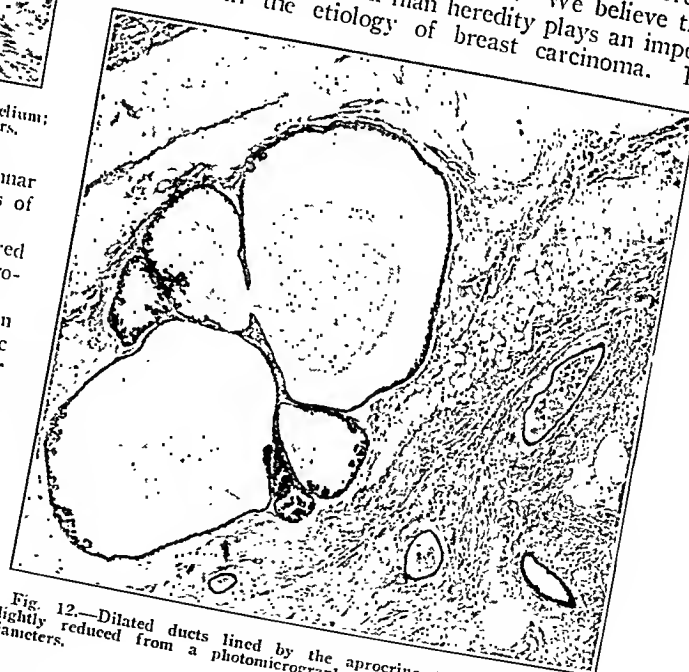


Fig. 12.—Dilated ducts lined by the apocrine type of epithelium; slightly reduced from a photomicrograph with a magnification of 10 diameters.

cysts (fig. 12). These were lined with acidophile, columnar epithelium thrown up into low papillary folds. Other cysts of this type were scattered throughout the breast.

A section from the upper inner quadrant of the breast showed only a slight degree of dilatation of ducts and no definite proliferation of their lining epithelium.

Three blocks of tissue taken from the upper middle portion of the breast showed perhaps the most marked degree of cystic change seen anywhere in the breast. There were many widely dilated ducts lined by papillary epithelium of the apocrine type. One of these sections showed particularly well the multiplication of small ducts to give the histologic picture of what, for want of a better name, we are accustomed to call adenosis (fig. 13). This type of proliferation was seen also in other portions of the breast. Another section from this region appeared to show malignant transformation of acinar epithelium. The small, dark, cuboidal cells of the normal acini were apparently developing into larger, irregular, acidophile cells like those growing in other portions of the breast as carcinoma. We have not included an illustration of this transformation, because it is so difficult to show photographically. A section through the small, firm, encapsulated tumor lying on the deep surface of the breast showed it to be an intracanalicular fibro-adenoma.

Seven of the nine axillary lymph nodes contained metastases. In these lymph node deposits the tumor maintained the morphology of its original structure in the breast, even to the extent of forming psammoma bodies (fig. 14).

family nature in human beings is best shown by Wassink's data, which are based on the family histories of 660 women with carcinoma of the breast. Two hundred and seven of these women had relatives who

had had cancer. One hundred and ninety-two of these cancerous relatives were women. One hundred and twelve, or 58.3 per cent, of these women had cancer of the breast. In the general population of Dutch women only about 10 per cent of deaths from cancer are due to breast cancer.

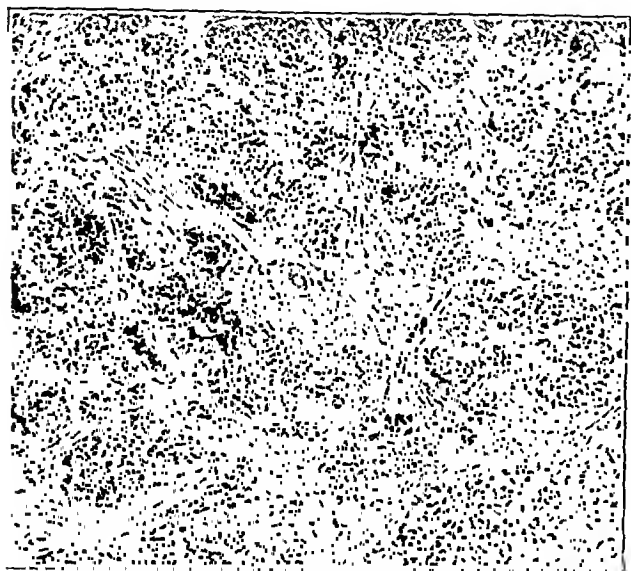


Fig. 13.—Multiplication of small ducts to give the picture of adenosis; reduced from a photomicrograph with a magnification of 80 diameters.

Our experimental work has shown that in mice this hereditary factor is a prerequisite for the induction of breast cancer with estrogenic substance. We have succeeded in inducing the disease only in strains of mice that have a considerable tendency to the spontaneous development of breast cancer. In a strain of mice like the C57 strain, in which the incidence of the disease is only a fraction of 1 per cent, no amount of the substance will induce breast cancer.

If this relationship between heredity and the effect of estrogen holds in human beings as well as in mice, we infer that our patient was one of those in whom estrogenic substance might have induced breast cancer, for she had a strong familial tendency to the development of the disease.

2. The patient was given estrogenic substance over a relatively prolonged period—two years and three months. It will be argued that this was too short a period for the induction of cancer. Cramer⁹ has stated that if biologic time, that is, the life span, is used as a basis for reckoning, one must infer that it would take from eight to ten years of estrogenic therapy to induce cancer of the breast in a human being. He reckons one month of the life of a mouse as being comparable to about two years of life in a human being. The minimum period necessary for the induction of breast cancer in the mice that he treated was four months.

This kind of comparison has been made many times in the past in biologic work, but it seems to us a questionable one. We know, of course, that disease processes in general are more rapid in mice than they are in human beings. Our information is too inadequate, however, to permit definite conclusions as to comparative rapidity. Consider the natural history of breast carcinoma in the mouse and in man. In a large series of spontaneous mouse tumors of this type which one of

us (C. D. H.) once studied, the average interval between the time that the tumor was noticed and that death occurred was six and one-half weeks. Greenwood¹⁰ found the average duration of untreated human cancer of the breast to be 38.3 months. This might lead one to infer that the disease progresses twenty-six times as fast in mice as it does in human beings. This reasoning is probably wrong, however, because cancer is usually detected late in the mouse as compared with the human being. Moreover, mice tend to die off early with the disease as compared with human beings, because mice almost always develop multiple tumors that attain a large size and become abraded and infected.

3. Our patient received a relatively large amount of the hormone, 79.067 mg. of estradiol benzoate (progyron B). In a series of experiments carried out in our laboratory the smallest total amount of benzoate of estrone that induced breast carcinoma in a mouse was 0.45 mg. This was in a male mouse that was treated over a period of 3.5 months, beginning eleven days after birth. It is important to point out that in this experiment, as in the experiments which have been done by others, the mice have been given as much of the estrogen as they would tolerate; indeed they often died from its effects. We do not know what the minimal dose necessary to induce breast carcinoma in mice really is. It is probably considerably less than 0.45 mg. But, lacking further experimental data as to dosage, we are tempted to make a comparison of dosages on the basis of body weight between this mouse and our patient. There are, however, two reasons why we believe that it is impossible to make such a comparison. In the first place, we do not have data that afford a basis for comparing the breast-stimulating potency of benzoate of estrone with that of estradiol benzoate, weight for weight. In the second place we doubt that the effective dosages of any substances in the mouse and in man are strictly relative to body weight. All we can say

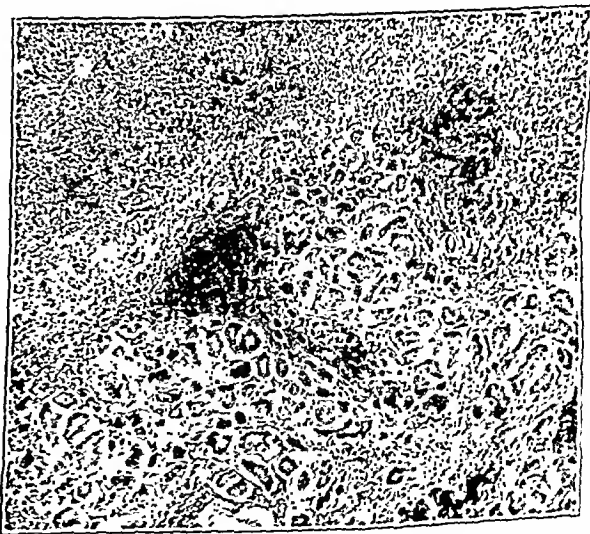


Fig. 14.—Metastasis in axillary lymph node; reduced from a photomicrograph with a magnification of 60 diameters.

about the dose of estrogenic substance in our patient is that we believe that it was sufficient to produce obvious changes in her breasts.

4. The carcinoma that did develop in our patient's left breast was of an unusual histologic type. It was

9. Cramer, W.: On the Aetiology of Cancer of the Mamma in the Mouse and in Man, *Am. J. Cancer* 30: 318 (June) 1937.

10. Greenwood, Major: Report on Natural Duration of Carcinoma Ministry of Health Report No. 33, London, His Majesty's Stationery Office, 1926.

accompanied by dilatation of ducts and epithelial proliferation throughout the whole breast, changes similar to those which we have observed in other human breasts following the administration of the estrogens.

CONCLUSION

We are not able to conclude that the estradiol benzoate (progynon B) that our patient received was certainly a contributing cause of her carcinoma, but we think it entirely possible, indeed even probable, that it was. The point can be definitely settled only by a careful and long continued follow-up of large numbers of women treated with estrogens.

Lacking this evidence at present, we are nevertheless sufficiently alarmed by our own experiences to warn against the needless and excessive administration of estrogenic substances so prevalent today. Until more is known about the effects of these substances we believe that their use should be avoided:

1. In large or prolonged doses.
2. When there is a family history of breast cancer.
3. Without initial and repeated clinical examination of both breasts.
4. In patients with chronic mastitis, carcinoma or any form of breast neoplasm, either before or after surgical or radiation treatment.

630 West One Hundred and Sixty-Eighth Street.

INDUSTRIAL DERMATITIS FROM GLOVES

EFFECT OF DERMATOPHYTOSIS (RINGWORM); "GLOVE PHYTIDS"

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AND

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A large number of workmen are required to wear leather gloves or gloves of similar type for protection while working. A definite increase in the incidence and severity of dermatophytosis has occurred during recent years.¹ This makes consideration of the subject important to dermatologists, industrial physicians and general physicians who see many cases of eczematoid dermatitis of the hands.

In this study we have endeavored to determine the relative importance of gloves and dermatophytosis of the feet (athlete's foot) in the production of a particular type of eczematoid dermatitis of the hands.

For several years we have noticed that many of the workmen in the section of our plant manufacturing tetra-ethyl lead contract eczematoid lesions of the hands. Previously the rash was considered to be an eczema having no relation to work. During these years many patients have been treated by family physicians and several have been referred in turn to dermatologists. The condition of the hands of several of these men was so bad that they could not work for many months. In some cases the condition became definitely worse as soon as the employee returned to work. In one case severe lesions of the feet and hands suggested dermatophytosis to the dermatologist. However, he felt that

the lesions were not typical and that the cause was possibly idiosyncrasy to the gloves worn or to other material handled by the workman.

In March 1938 a systematic study was begun to try to determine the cause of this eczematoid dermatitis. It was found that among the 300 operators in the tetra-ethyl lead plant twenty were suffering from this particular form of dermatitis, which had been present for from a few weeks to four or five years. The men reported that there were some periods when the hands were almost free from lesions and others when the eczema was very severe. It was rather uniformly worse in summer and was better when the men were on vacation or away from the plant for week-ends.

WORKING CONDITIONS

The men all wear leather gloves which are dipped into a solution of soap chips and glycerin to make them impervious to any possible spill of tetra-ethyl lead fluid. The gloves are worn of necessity at least seven of the eight hours at work. The men wash their hands with a liquid soap having a linseed oil base. Having finished his work, each man takes a shower.

NATURE OF RASH ON HANDS

The rash first appears as small, well demarcated clusters of tiny noninflammatory vesicles located along the sides and in the webs of the fingers and on the dorsum of the fingers and hands. Small deep seated vesicles with pearl gray centers are occasionally found in the palms. In severe cases the patches coalesce to form a continuous rash, which may extend onto the forearm. In mild cases, as some patches of vesicles clear, others form. Severe cases present all the phases of eczema with exudation, crusting, fissuring and scaling. Examples of the mild phase (case 11), mild chronic phase (case 17) and extensive acute phase (case 3) are shown in figures 1, 2 and 3.

DIFFERENTIAL DIAGNOSIS

The following conditions might produce such eczematoid lesions:

1. Dermatophytids.
2. Dermatophytosis.
3. Dermatitis due to materials coming in contact with the hands at work or at home, including such things as gloves, soaps, hair washes, powders, lotions, plants and chemicals.
4. Sensitivity to foods, medicaments and toxins. To this group we may add pompholyx, a condition which many dermatologists now feel is nonexistent.
5. Combinations of any two or more of the conditions just enumerated.

For a detailed discussion of the differential diagnosis in unselected cases, the reader is referred to the recent article by Wise and Wolf² and to that of White.³

GENERAL CONDITION OF PATIENTS

The twenty men under consideration are all in good physical condition. Recent roentgenograms of chests, complete blood counts and urinalyses gave normal results, and the blood Kahn reactions were negative. Searches for focal infection in teeth, sinuses, tonsils and occasionally in prostates were unsuccessful. There was one exception (case 6) in which the white blood count remained elevated with a normal differential count in spite of tonsillectomy, repair of the teeth and long continued prostatic massages. The condition of the feet will be discussed later.

1. White, Cleveland: The Role of Fungi in Occupational Skin Diseases, Illinois M. J. 56:219 (Sept.) 1929. Sulzberger, M. B., and Wise, Fred: Ringworm and Trichophytin: Newer Developments Including Practical and Theoretical Considerations, J. A. M. A. 99:175-179 (Nov. 19) 1929.

1936.

3. White, C. J.: Occupational Dermatoses, Indust. Med. 6:135 (March) 1937.

An inquiry was made and our carefully kept records were searched in each case for possibility of an allergic background, but none was found. None of the men had ever suffered from any of the usual diseases of allergy. Possible home irritants were investigated. In some cases scratch tests were made to determine possible sensitivity to foods, danders, powders and other substances. These gave no positive results.

SKIN IRRITANTS AT WORK

The fact that in many cases the rash improved greatly or cleared entirely at home only to recur on return to work suggested a definite relation to work. The only chemical handled by the men is tetra-ethyl lead. This is handled entirely in a closed system with no contact. Absorption of tetra-ethyl lead through the skin or by inhalation produces severe systemic reactions. However, we have never had a case of dermatitis due to this fluid and we were not able to find any authentic report of a case in the literature. None of the men showed evidence of lead poisoning, though they were checked in a routine way for this at intervals of three weeks.

It was thought that the liquid soap with which the men washed their hands might be the cause of the trouble. A linseed oil base soap with very low alkalinity is used. Patch tests were made with this soap, using controls. We started at 100 per cent strength and halved the strength successively until at 1.5 per cent an occasional control was positive; at 3 per cent about one third and at 6 per cent about one half were positive. We then used these strengths (1.5, 3 and 6 per cent) for patch testing the men with active lesions and a like number with no lesions as controls. Fewer positive results were obtained with the men having the rash than with those used as controls. The men were further patch tested with linseed oil with no positive results.

At this time an employee who had been absent from work for two months because of a severe eczematoid

to wear gloves. His hands remained perfectly clear for the month in which he was so employed. He was then given gloves treated in the usual manner by dipping in a solution of soap chips and glycerin. He was told to report to us at the first sign of itchiness or rash. He reported to us the same afternoon with early lesions, which became worse and required a month at home to



Fig. 2 (case 17).—Mild chronic phase.

cure. On return to work the procedure was duplicated except that after using no gloves on outside work for a month with no trouble, he was given leather gloves which had not been treated with soap and glycerin. Again the rash quickly developed.

At this time this man, together with the nineteen other men with lesions of the hands, were patch tested with the treated and untreated leather gloves which they wear. One patch of leather was wet with the man's own perspiration, another with physiologic solution of sodium chloride. The patches were removed in twenty-four hours. The cutaneous reaction was noted and the patches were reapplied for a second twenty-four hours at the same site. The patches were placed as near to the active lesions as possible. There was not even a 1 plus reaction in the whole group.

THERAPEUTIC TESTS WITH GLOVES

Wishing to evaluate the effect of attention to the glove problem alone, we gave no treatment to the feet unless urgently needed during the first eight months of observation. The men could not work in the lead buildings without wearing leather gloves. However, during this time the hands of six of the men became so bad that they were put on work outside the buildings, where they were not required to wear gloves. In periods ranging from a few days to a month or two the eczematoid lesions of the hands cleared with no other treatment than mild lotions applied to the hands. On close inspection there were usually to be seen a few remaining noninflammatory vesicles so small that the men themselves did not notice them and considered themselves cured. However, when they resumed normal duties which required the wearing of gloves all day there was a recurrence of the lesions in each case.

The twenty men were instructed to use oversize leather gloves and to wear soft cotton gloves inside these, next to the skin. The cotton gloves are changed every other day. In every case the men reported that their hands were better, and clinical improvement ranging from little to great was noted. In not one of the cases were the hands completely cured by this means alone. The men are still following this procedure as long as there are any lesions on the hands.



Fig. 1 (case 11).—Early stage of dermatitis showing groups of minute noninflammatory vesicles along sides and dorsum of fingers.

condition of the hands and forearms, as well as of the feet, returned to work in the tetra-ethyl lead buildings. His hands were completely clear but after he had worked one day, wearing leather gloves, the fine vesicular rash returned. A further two months of treatment by the family doctor at home was therefore necessary. On return to work this man was given a job mowing grass in the yard, where he was not required

There are fifty men working in the area as supervisors, clerks or laboratory workers who are not required to wear gloves. Not one of these has ever reported the dispensary for dermatitis of the hands.

From the evidence just presented we feel that allergy to leather plays no part in our cases and probably in the great majority of similar cases. The friction, heat and excessive perspiration of the skin, with a tendency toward maceration of the horny layer, occasioned by the wearing of leather gloves is an important though not exclusive factor in the production and maintenance of these eczematoid lesions of the hands.

We next investigated the group to determine the relative importance of dermatophytosis of the feet in causing the hand lesions.

DERMATOPHYTOSIS AND DERMATOPHYTIDS

Williams⁴ in 1927, studying cases of dermatophytosis involving both feet and hands, reported that, while the responsible organisms were always found by examination of scrapings from the lesions of the feet under the microscope or by cultural methods, they were seldom found in the lesions of the hands. He expressed the belief that the lesions of the hands were of an allergic nature—dermatophytids—secondary to the primary superficial lesions—dermatophytosis—of the feet. This theory is generally accepted at present, having been proved by the work of a number of investigators. The dermatophytids may appear anywhere on the glabrous skin. The primary lesions may be on the hands and the "phytids" on the feet or elsewhere, but the primary lesions are usually on the feet in the interdigits and secondary lesions on the hands.

Our group of twenty men were examined for dermatophytosis of the feet, and clinical evidence of its presence was found in every case. The different stages or types were found. In every case white sodden plaques with vesicular or scaly lesions were found in the fourth interdigital space, frequently in the other interspaces. Hyperkeratotic patches on the balls of the feet and tense vesicles, bullae or pustules on the plantar surface, usually on the arch or inner side of the foot, were common. The sodden type with cracking and with vesicula-

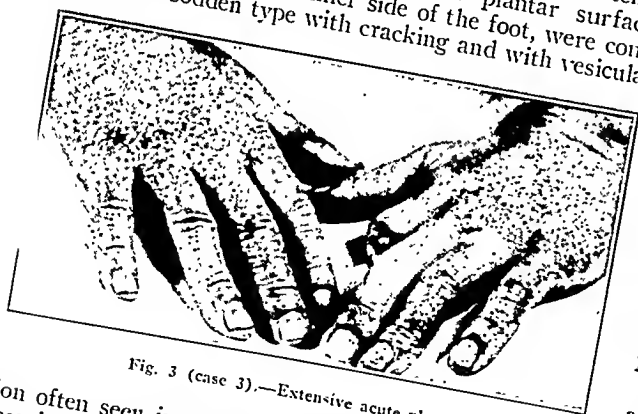


Fig. 3 (case 3).—Extensive acute phase.

tion often seen in summer is shown in figure 4. In an occasional case there was only a little atrophy, as shown by a slightly shiny skin with a little scaling between the fourth and fifth digits.

CONFIRMATORY STUDIES

Studies to confirm the clinical observations were conducted along the following lines:

1. Scrapings are taken with a sharp scalpel from active lesions of feet and hands after careful cleansing

4. Williams, C. M.: Enlarging Conception of Dermatophytosis, Arch. Dermat. & Syph. 15: 451 (April) 1937.

of the area with alcohol. These are soaked in 10 per cent sodium hydroxide under a cover slip ringed with Canada balsam to prevent evaporation. The slides are examined from fifteen minutes to four days later for the presence of fungi.

2. Similar scrapings from foot lesions are soaked in 80 per cent alcohol for five minutes and then planted on Sabouraud's slants. These we examined at intervals of two or three days. The pathogenic colonies of fungi usually appear in from two to four days and grow slowly, attaining a diameter of about 1 inch in from seven to ten days. The colonies have little or no color and usually have a downy appearance. Such colonies we examined in a hanging drop under the microscope for morphologic study. In doing this laboratory work we have followed the methods outlined by Weidman.⁵

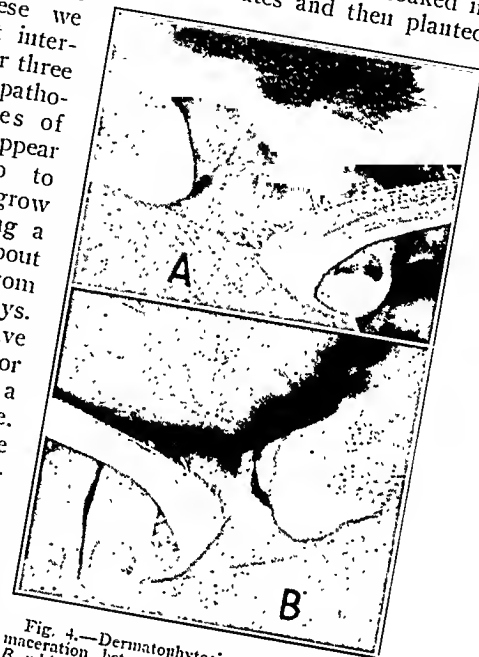


Fig. 4.—Dermatitis, A, scaling and maceration between second and third toes. B, white sodden plaque with cracking between third and fourth toes (case 10).

3. Intracutaneous injections of commercial extracts of trichophytin and oidiomycin are made. Positive reaction indicates sensitization of the skin to these products by past or present infection with fungi or yeast. In doing these tests we used the technic of Lewis and his associates.⁶ One-tenth cc. of a commercial extract of trichophytin and a like amount of oidiomycin are injected intradermally into the skin of the forearm.

An immediate wheal reaction is often present with redness, swelling and pseudopod formation. This is read ten minutes after the injection. An involved area greater than 1.5 cm. is noted as 2 plus, an area less than 1.5 cm. as 1 plus. After forty-eight hours the late inflammatory reaction is read as follows: 0 for a negative reaction, 1 plus or minus for an area of slight redness measuring approximately 0.5 cm., 1 plus for an area 0.5 to 1 cm., 2 plus for an area 1 to 1.5 cm., 3 plus for an area 1.5 to 2 cm. and 4 plus for an area 2 cm. or more.

Lewis notes that the response to dermatomycin is always positive when the subject has a dermatophytid. He further states that in cases in which the reaction to trichophytin is vigorous the prognosis is favorable.

RESULTS OF DERMATOPHYTOSIS STUDIES

A summary of results is shown in the table. The clinical diagnosis of dermatophytosis was verified in all cases that we were able to examine (eighteen) by the pathogenic fungi observed in the scrapings from the active lesions of the feet.

In cases 3, 9 and 13 we were able to obtain cultures of the fungi from scrapings planted on Sabouraud's

5. Weidman, Fred D.: Laboratory Aspects of Epidermophytosis, Arch. Dermat. & Syph. 15: 415 (April) 1937.
6. Lewis, G. M.; McKee, G. M., and Hopper, M. E.: Trichophytin Test: Its Value as Diagnostic Aid, Arch. Dermat. & Syph. 38: 713-726 (Nov.) 1938.

medium. We found the fungi in material from the hands only once, in case 12. Sensitivity to trichophylin, oidiomycin or both was demonstrated in all cases in which tests were made (sixteen) with one exception, case 2. In this case treatment had been given for two months; the toes were almost clear and the hands had been free from any lesions for three weeks.

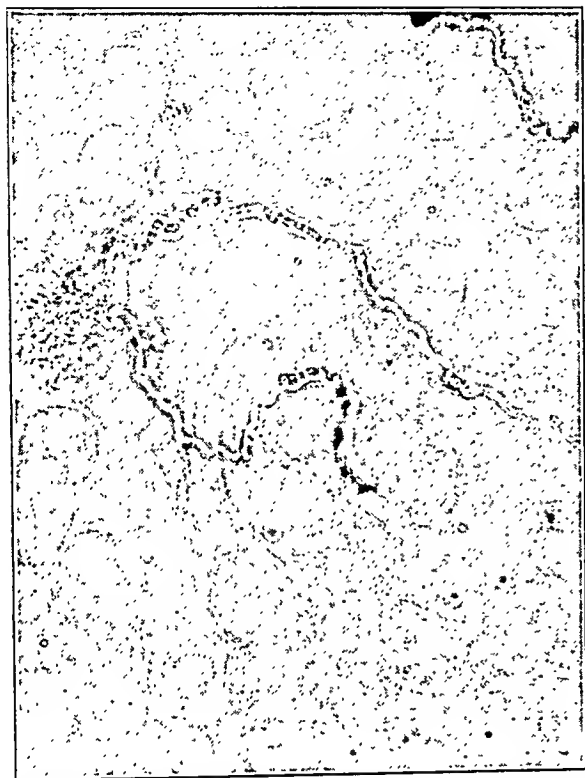


Fig. 5 (case 20).—Fungi as seen in scrapings from toe lesion, mounted in 10 per cent sodium hydroxide; \times 420. The relative size of the epithelial cells is clearly seen.

No attempt was made to identify the particular type of fungi responsible for the intertrigo except to note whether the condition was due to the commonly responsible group of fungi (*Trichophyton interdigitale*, *Epidermophyton cruris*, *Trichophyton gypseum*, *Trichophyton rubrum*) or the *Oidium albicans* (yeast) group. This was done for therapeutic purposes since we have found, as have others, that the yeast infections are best treated with the organic dyes. Long mycelia seldom branching are beyond question pathogenic of ringworm⁷ when found in scrapings from the toes, and figure 5 demonstrates such fungi from case 20. The relative size of the fungi as compared with epithelial cells is clearly seen. Fungi from active interdigital lesions (case 13) grown on Sabouraud's medium are shown in figure 6.

COMBINED TREATMENT OF FEET AND HANDS

Prehn⁷ used a powder very successfully in the treatment of a large number of men in the United States Navy. The formula which he used was salicylic acid 5 Gm., menthol 2 Gm., camphor 8 Gm., boric acid 50 Gm. and starch 35 Gm.

We have used this powder for the last twelve months with results as good as or better than we had obtained with other remedies. Each man is given two 2 ounce containers of the powder, one to use at home before

coming to work and one to be kept in his locker for application after taking his shower at the end of his work period. The powder is rubbed well into, and for a distance of 1 inch around, affected areas, after first removing the tops of vesicles or bullae. Powder which does not stick to the skin is caught on a piece of paper and dusted into the bedroom slippers. In resistant cases shoes are sterilized with full strength formaldehyde. The application of the powder is so simple and clean that the men will usually cooperate. This is a big factor in chronic resistant cases. The powder used once a week is a useful prophylactic agent.

When cases were proved to be due to yeast by the finding of many budders and elongated hyphae in the scrapings, we obtained gratifying results by treating the lesions with 2 per cent gentian violet water.

Six of the patients have been actively treated for periods ranging from three to six months. Involvement was severe. Gloves were eliminated entirely when the lesions of the hands became acute and widespread. At other times soft gloves were worn under the leather gloves. Soothing lotions were used on the hands, and the feet were actively treated with the salicylic powder or with 2 per cent aqueous gentian violet. Two of the six patients have been completely cured and have remained free from any lesions for six months or longer. They are now able to wear their leather gloves with impunity. Patient 9 has had clear hands for eight months but has recently had a mild recurrence of a yeast infection of the toes which appears to be rapidly clearing with treatment. Patient 2 has had clear hands for three weeks and so has stopped treatment. He was told to resume treatment of his toes as their lesions are still mildly active, although his sensitivity to fungous products has disappeared as shown by the intracuta-

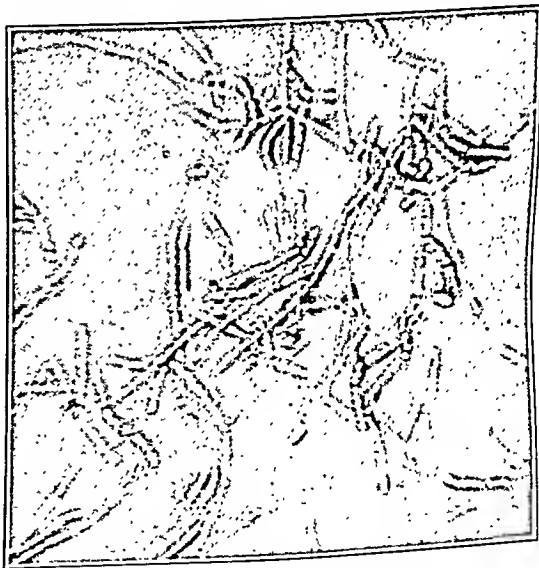


Fig. 6 (case 13).—Fungi from lesions of toe grown on Sabouraud's medium and view in hanging drop; \times 950.

neous tests. The other two men have shown great improvement but still have mild lesions of the hands and feet.

The dermatitis of the remaining fourteen men has been somewhat milder or more recent in origin, and we have waited until our clinical and laboratory studies were complete before starting active treatment of the feet. These have been treated for periods ranging from one week to three months. It is too early to

7. Prehn, Douglas T.: A Treatment for the Superficial Mycotic Infection of the Glabrous Skin, J. A. M. A. 111: 685-688 (Aug. 20) 1938.

evaluate results in this group. Patient 18 has focal involvement of a finger nail. This is receiving roentgen treatment by a dermatologist. When it seems probable that fungi are present in the lesions of the hands, as in this case, the treatment is the same as for the feet. However, in most cases the fungi are not present in the lesions of the hands, and mild lotions are much more suitable.

DERMATOPHYTOSIS AND DERMATOPHYTIDS AMONG THE OTHER EMPLOYEES OF THE PLANT

Recently, over a period of a few days, we checked the feet of each employee coming to the plant hospital dispensary for treatments or routine examinations. No patients were included who came in with complaints referable to the feet or hands which proved to be dermatophytosis or dermatophytids. One hundred and eighteen employees were examined, and ninety-nine (84 per cent) showed clinical evidence of dermatophytosis of the toes. While only a small percentage of the plant personnel was thus examined, we feel that this gives a rough index for the plant as a whole with its 5,000 employees.

A check of our sick rolls for the year showed more time lost because of dermatophytosis than for all other skin diseases combined, infection excepted.

A close check indicates that of the 4,045 employees of this plant approximately 47 per cent wear gloves most of the time at work, while 41 per cent do not wear gloves at all. The remaining 12 per cent wear gloves less than half the time.

During the last three months we have seen forty-one patients having eczematoid lesions of the hands in which focal dermatophytosis of the feet was felt to be a factor. Of these, thirty-eight (93 per cent) wear leather gloves practically all the time at work. The rash of two of the three who did not wear gloves was probably due to a combination of mycotic and chemical sensitization. One showed definite hypersensitiveness to 0.5 per cent sodium bichromate, with which he worked. Patch tests were strongly positive, and the chemical rash on his arms cleared on removal from chemical exposure only to recur with reexposure. The dermatophytids of the hands cleared more slowly when the chemical exposure was removed, and there was a flare up of both dermatophytosis and dermatophytids on reexposure to the sodium bichromate. The other man constantly worked with torch oil, which is known to operate jointly with focal mycotic infection in producing eczematoid lesions of the hands.⁸ Only one patient showed definite dermatophytids without contribution from gloves or chemical, and his condition was not chronic like the others.

With only 47 per cent of the employees wearing gloves more than half of the time, 93 per cent of the cases of eczematoid lesions of the hands secondary to dermatophytosis have occurred in this group. The frequency is seen to be fifteen times as great for those wearing leather gloves or gloves of a similar nature as it is for those not wearing gloves.

We believe that eczematoid lesions of the hands will be found with great frequency in any industrial group in which the men have a high incidence of dermatophytosis of the feet and wear leather, or gloves of a similar nature, a large part of the time.

8. Kammer, Adolph G., and Callahan, Richard H.: Torch Oil Dermatitis, *J. A. M. A.* 109: 1511-1516 (Aug. 20) 1938.

POLYSENSITIVITY FROM DERMATOPHYTOSIS

Since Williams⁴ described the sensitizing effects of a focus of superficial mycotic infection, many studies of different phases of this subject have been made. White and Taub⁹ apparently were the first to express a belief that a superficial mycotic infection could sensitize the skin to substances which otherwise were not irritating to the skin. Sulzberger and Wise¹⁰ felt that superficial fungous infection often may be jointly responsible for chemical dermatitis or drug eruptions by a polyvalent sensitization of the skin not only to fungous products but to various chemicals and drugs.

Stokes and Kulchar¹¹ reported several cases in which they felt that sensitization due to dermatophytosis had increased the allergic reactivity of patients with arspenamine dermatitis.

Beerman¹² gave an excellent review of the literature on this subject up to 1934 and cited a case of dermatitis

Summary of Studies of Men with Eczematoid Lesions of Hands

Case	Fungi or Yeast in Toe Lesions	Intradermal Reaction with		Improvement with Soft Liner or No Gloves	Present Results
		Trichophyton	Oldio-mycin		
1	F	+++	++	Little	Almost cured
2	F & Y	0	0	Much	Hands clear, 3 weeks
3	F & Y	+	++	Much	Severe case, almost clear
4	F	—	++++	Little	Mild chronic case
5	F	+++	++	Moderate	Feet clearing, hands resistant
6	F	+	++++	Moderate	Feet hard to clear
7	F & Y	—	++++	Much	Hands and feet resistant, much improved
8	F & Y	++	++	Moderate	Using rubber gloves, now little improvement
9	Y	Not examined		Moderate	Hands cured, 9 months feet reinfect
10	F	++++	+++	Much	Almost clear
11	Y	—	++++	Much	Only occasional vesicle on hands
12	F	+	++	Little	Fungi found in hand scrapings, much improved
13	F	++	++	Moderate	Lost months from work, much improved
14		Not examined		Much	Completely cured, 10 months
15	F	Not examined		Much	Hands and feet clear, 3 weeks
16	F & Y	++	++++	Much	Hands clear, 6 weeks; feet almost clear
17		Not examined		Much	Completely cured, 14 months
18	Y	—	++++	Little	Infected finger nail, x-ray treatment now
19	Y	++	++++	Moderate	Have not seen for month
20	F	++	+++	Little	Feet better, hands same

which he felt was due to a combination of dermatophytosis and dermatophytids occurring simultaneously with and augmented by sensitization to leather.

Kammer and Callahan⁸ reported twenty-two cases of eczematoid dermatitis of the hands, similar to our cases, which they felt were due to a combination effect from torch oil (crude kerosene) contact in sensitive men and sensitization due to superficial mycotic infection.

COMMENT

From our studies of twenty men it is our opinion that the eczematoid lesions of their hands are due to two factors: (1) leather gloves, traumatizing the skin through friction, heat and excess perspiration, and (2) dermatophytids, sensitization rash from dermatophytosis of the feet.

9. White, Cleveland, and Taub, S. J.: Sensitization Dermatoses of Nonfungous Nature, *J. A. M. A.* 98: 524 (Feb. 13) 1932.

10. Sulzberger, M. B., and Wise, Fred: Drug Eruptions, *Arch. Dermat. & Syph.* 27: 549 (April) 1933.

11. Stokes, J. H., and Kulchar, G. V.: The Infection-Allergic Complex: Arspenamine Dermatitis Reactions, with Special Reference to the Role of Sensitization, *Dermat.* 46: 134 (March) 1934.

12. Beerman, H.: Factors Involved in Leather Dermatitis, *Arch. Dermat. & Syph.* 29: 111 (May) 1934.

The gloves probably make the hands more susceptible to dermatophytid formation through their macerating effects and, after their formation, tend to convert the noninflammatory dermatophytids into acute inflammatory lesions by the same mechanical processes.

For the dermatitis thus produced, we suggest the name "leather-phytids," thus expressing in two words what it requires many sentences to explain. We further suggest the term "chemical phytids" for dermatitis due to a combined sensitivity to a chemical and to superficial mycotic infection. When the chemical is known, for instance potassium bichromate, the term "potassium bichromate phytids" is appropriate.

CONCLUSION

1. We have carried out studies of an eczematoid type of industrial dermatitis of the hands appearing in workmen wearing leather gloves many hours daily. The dermatitis has been shown to be caused by two factors: (1) the traumatizing effect of the gloves, and (2) allergic sensitization of the hands due to the presence of dermatophytosis elsewhere (usually on the feet).

2. Since dermatophytosis of the feet is almost universal among industrial workers, many of whom must wear leather gloves for protection, we believe that "glove phytids" will be recognized with great frequency.

3. We have used a method of treatment which we believe is rational and which has given good results in this series of cases.

LEAD POISONING IN ROOFERS

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AND

B. O. RAULSTON, M.D.

LOS ANGELES

During the last six months eight instances of lead poisoning in roofers have been encountered at the Los Angeles County General Hospital. Since a search of the literature fails to reveal an account of such a condition in this occupational group, and since in the light of our investigations the hazard of lead poisoning is a new one in these workers, a report is considered justified.

The most important information concerning these patients is summarized in the accompanying table. All the patients are males and with but two exceptions are in early adult life. These men have been working as roofers from periods of three months to ten years. All of them give a history of holding the galvanized roofing nails in their mouths while working. None of these give a history of any other exposure to lead. The most striking facts about the entire group are found in the dates of their first attacks of colic. As long as most of these men had been working at this occupation, with but one exception none of them had had lead colic previous to May 1939. The diagnoses on admission or prior to entry are in no way surprising. Patient 1 had a diagnosis of possible lead poisoning made prior to admission on the basis of basophilic stippling in the red blood cells. Patients 5 and 6 made their own diagnoses on the basis of the previous experiences of

their fellow workers. It should be noted that one of the patients had an appendectomy at the time of his first attacks of colic.

Each patient complained of colic and all but three of constipation of a moderately severe degree. Only one presented evidence of neuritis and in this instance it was limited to paresthesias involving the arm. None of the patients presented indications of notable neurologic changes. The lead line was present in but three.

In view of the conflicting reports in the literature regarding lead poisoning and hypertension¹ it is of some interest to point to the almost uniformly increased diastolic and in some instances systolic pressures observed in this group. They are certainly higher than one would expect in this age group.

Each patient had a moderate degree of anemia and basophilic stippling of the red cells, but the latter was not determined quantitatively.

The urine was examined for porphyrins in one case and none were found. As has been the practice in this hospital for the past year and a half, lead determinations were done on the whole blood rather than on the urine. All of these blood examinations were done spectrographically and in each case the amount of lead in the blood was well within the pathologically significant range. The upper limit of normal according to most of the figures available in the literature may be taken to be 0.05 mg. of lead per hundred cubic centimeters of whole blood.² The first patient in this group had the highest concentration of lead in the blood that we have encountered in more than 150 blood examinations. Blumberg has also reported one case in which he found a value of 1 mg. per hundred cubic centimeters of whole blood.³

Since all these patients are adults, x-ray examination of the long bones would not be expected to be of value.

That the roofing nails were the source of the poisoning was at once suspected. Lead is a notorious contaminant of commercial zinc, and lead poisoning has been reported in the zinc industry.⁴ Samples of the nails were obtained from some of the patients and, after qualitative spectrographic analysis had indicated the presence of considerable quantities of lead, chemical analyses were made by the lead sulfate method. Approximately 3 per cent of lead was found in the galvanized coating of the nails.

The problem still remained to determine why there should be such a recent outbreak of lead poisoning in these men who had been doing the same work for periods of as long as ten years. We believe that the answer is found in the change in type of roofing nails used.

For the past ten years the various roofing concerns and lumbermen's associations have recommended the use of galvanized nails because of their weather resisting properties. In spite of these recommendations the com-

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1. Teleky, Ludwig: A Note on Blood Pressure in Lead Poisoning, *J. Indust. Hyg. & Toxicol.* 19:1-5 (Jan.) 1937. Belknap, E. L.: Clinical Studies on Lead Absorption in the Human: III, Blood Pressure Observations, *ibid.* 18:380-390 (Sept.) 1936. Gunther, G. W.: Blei und Hochdruck, *Deutsche med. Wochenschr.* 64:1146-1147 (Aug. 5) 1938.
2. Kehoe, R. A.; Thamann, Frederick, and Cholak, Jacob: Normal Absorption and Excretion of Lead, *J. A. M. A.* 104:90-93 (Jan. 12) 1935. Scott, G. H. McMillan: The Spectrographic Determination of Lead in Blood from Normal Human Subjects, *Am. J. M. Sc.* 195:622-627 (May) 1938. Willoughby, C. E., and Wilkins, F. S., Jr.: The Lead Content of Human Blood, *J. Biol. Chem.* 124:639-657 (Aug.) 1938. Wexler, I. B., and Sobel, A. E.: Spectrographic Determination of Lead in Blood Serum, *Proc. Soc. Exper. Biol. & Med.* 32:719-722 (Feb.) 1935. Blumberg and Scott: Smith, Ratimell and Marcell.
3. Blumberg, Harold, and Scott, T. F. McNair: The Quantitative Spectrographic Estimation of Blood Lead and Its Value in the Diagnosis of Lead Poisoning, *Bull. Johns Hopkins Hosp.* 56:276-293 (May) 1935.
4. Urtel: Bleiintoxikationen und ihre Bedeutung für die Zinklattenindustrie, *Ztschr. f. Gewerbehyg.* 20:165 (Nov. 15), 184 (Dec. 15) 1912.

mon practice had been to use the so-called blued nail. These nails are easily recognized by their thin blue coating, which is due to acid treatment during manufacture. We are unable to find any appreciable quantities of lead in these nails either by spectrographic or by chemical analysis.

When the Federal Housing Administration first began to function, galvanized nails were specified, but apparently this requirement was not rigidly enforced until early in 1939. Not until this ruling was enforced did the use of these nails become general. The first of these new attacks of colic in this group of patients occurred in May 1939.

The nails now used are fourteen gage "hot-dip" galvanized nails, the size varying with the manner in which the shingles are to be laid. According to information obtained from the Columbia Steel Company, the larger sizes are most commonly coated with prime western grade zinc. Such zinc under the rejection limits set by the American Society for Testing Materials must not contain more than 1.6 per cent of lead.⁵ In the smaller sizes, however, in which smoothness is essential, lead and tin up to 5 per cent of each are commonly added to the zinc in order to lower the melting point

twenty-four hour urine from one of the patients was analyzed for arsenic and found to be normal. From 20 Gm. of nails we were able to find but 50 micrograms of arsenic.

From the stories these patients have told, we have reason to believe that we have seen only those who suffered from the more severe poisoning. Nearly all the patients can name two or three co-workers who have had similar though milder attacks.

Several of the patients were emphatic in their statements that they have always put the nails in their mouths but that they never had any trouble until the new galvanized nails were used.

In all fairness to the employers of these men, it should be stated that the workers admit that they have been told not to put the nails in their mouths. They have been told to wear "strippers" to carry the nails, but the men are equally emphatic in their statements that since they are paid by the square foot of roof finished it is impossible to shingle fast enough to make an adequate wage unless they hold the nails in their mouths. One patient reported that his daily wage dropped from \$7 or \$8 a day to \$3.50 a day when he started to use a "stripper."

Observations in Eight Cases

Case	Age	Years Roofed	Date of 1st Colic	Date of Admission	Admission Diagnosis	Con- stipation	Neuritis	Colic	Lead Line	Stip- pling	Hemo- globin	Blood Pressure	Blood Lead Mg. per 100 Cc.
1	27	4 yrs.	8/39	9/15	Mechanical ileus? Lead poisoning	+	0	+	0	+	75%	150/90	1.0
2	26	3 yrs.	9/37	9/24	Peptic ulcer	+	0	+	0	+	....	150/90	0.24
3	20	10 yrs.	10/39	10/14	Acute appendicitis	+	0	+	+	+	60%	132/88	0.22
4	26	1 yr.	5/39	11/15	Peptic ulcer	+	0	+	0	+	70%	128/90	0.23
5	28	1½ yrs.	12/39	12/10	Lead poisoning	0	+	+	+	+	70%	120/85	0.20
6	26	3 mos.	12/39	12/14	Lead poisoning	0	0	+	+	?	....	140/80	0.39
7	45	0 mos.	11/39	1/0	Peptic ulcer	+	0	+	0	+	64%	130/90	0.12
8	44	?	9/39	10/14	Cancer of stomach	0	0	+	+	+	64%	140/80	0.34

of the alloy and give a smoother coating to the finished product. There had been no recent change in the manufacture of these nails.

We have analyzed shingling nails of various sizes obtained from different manufacturers and have found a lead content of from 0.9 to 4.7 per cent in the zinc coating. These determinations were made by the dithizone method and were calculated on the ratio of lead to zinc.

As another link in this chain of evidence, we were interested in determining how much lead would be dissolved by the *in vitro* method. Thirty nails having 3 per cent of lead in the coating were placed in 50 cc. of pooled saliva having a p_H of 7.0. At the end of four hours 4 micrograms of lead was found dissolved in the saliva. While at first glance this may seem like a small amount, we feel that it is significant. The daily toxic oral dose of lead has been variously estimated at from 100 to 1,000 micrograms.⁶ At the rate of 4 micrograms from thirty nails it would not take so many to reach the toxic level, especially if one considers that the amounts soluble in saliva probably represent but a fraction of the amount ingested. Large amounts of zinc dust are found on the nails; some of this is probably swallowed, so that more lead is dissolved in the gastric juice.

The possibility of arsenic poisoning in these workers was recently suggested. In order to rule this out, the

The various authorities in the Federal Housing Administration and in the lumbermen's associations have been informed of our observations. They have brought pressure to bear on the manufacturers, who state that they will now coat the nails with an alloy of tin and zinc.

It is not our purpose in this paper to debate the diagnostic values of urine versus blood lead determinations. That is a question on which a sharp difference of opinion is expressed in the literature. We do not have the figures on the blood and the urine of these patients for comparison, yet we do feel that our work shows that the determination of the lead content in the whole blood by spectrographic means can be of definite diagnostic value. While it is true that stippling of the red cells was found in the blood of each of these patients when one considers all of the conditions in which stippling may be found, that alone cannot be taken as absolute evidence of lead poisoning. We agree with the conclusions of Blumberg and Scott that "A clinically positive blood lead (above the critical level of 0.1-0.2 mg. per 100 cc. of whole blood) has never been observed except in clinical lead poisoning or during convalescence from it; therefore, a clinically positive result indicates immediate or slightly remote lead poisoning."³

As has been the experience of other workers in the field, we have been unable to find any direct correlation between the level of lead in the blood and the severity of symptoms. All the patients responded promptly to calcium therapy in that their colic stopped and they were entirely symptom free. Usually the level of lead in the blood remained high and in the cases which we

5. Scott, W. W.: Standard Methods of Chemical Analysis, ed. 5, New York, D. Van Nostrand Company, 1939, p. 1071.

6. Wright, W.; Sappington, C. O., and Rantoul, E.: Lead Poisoning from Lead Piped Water Supplies, *J. Indust. Hyg. & Toxicol.* 10: 234-252 (Sept.) 1928. Lanza, A. J.: Epidemiology of Lead Poisoning, *J. A. M. A.* 104: 85-87 (Jan. 12) 1935.

have been able to follow for some time it remained high for a period of two or three weeks. In some instances, however, the concentration of lead in the blood has decreased dramatically following treatment. In view of the work of F. L. Smith and his co-workers at Philadelphia⁷ one wonders whether serum lead determinations would be of value in the prognosis of such cases. They were able to demonstrate that while the lead content of the whole blood might remain high following lead poisoning, yet, as the symptoms subsided, lead in the serum returned to its normal value.

A FAMILIAL HEMOPOIETIC DISORDER IN ITALIAN ADOLESCENTS AND ADULTS

RESEMBLING MEDITERRANEAN DISEASE
(THALASSEMIA)

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We are prompted to make this report because the cases to be described seem to represent a disorder of the blood in adolescents and adults which has hitherto received little attention. It is a chronic disturbance of erythropoiesis which is marked by microcytosis and hypochromia and by the production of red corpuscles of bizarre shape and red cells resembling targets. Normoblasts, polychromatophilic and particularly stippled red cells are found in the circulating blood. These abnormalities occur in spite of the presence of little or no anemia and even in the face of an actual increase in the red cell count above normal. The red corpuscles possess an unusually great resistance to destruction in hypotonic solutions of sodium chloride, yet there may be some evidence of increased red cell destruction in vivo. The patients may have no complaints, but splenomegaly is often found and roentgenographically demonstrable changes in the bones may be present. Our patients have all been Italians, and the disorder has been found in several generations of the two Italian families we have studied.

For reasons which will be given later, we believe that this disorder is similar to Cooley's "erythroblastic" anemia¹ or "Mediterranean disease" (thalassemia),² a serious and usually fatal disease of childhood. It seems probable to us that the cases we are about to describe represent a less severe form of thalassemia than is known by Cooley's name and consequently the patients have lived to adolescence and adult life. If this is true, they afford evidence supporting the view that this disorder is a hereditary anomaly of red cell formation, a possibility which has been mentioned by several stu-

dents of Cooley's anemia but in favor of which there has been no evidence until recently. This would place thalassemia in the same category as familial hemolytic icterus and sickle cell anemia, two conditions with which it has much in common. The pertinent literature will be considered.

REPORT OF CASES

PATIENT M. D. and FAMILY D.—A Sicilian youth known to have splenomegaly, hypochromic microcytic anemia and chronic low grade jaundice with urobilinuria since the age of 10; anemia "idiopathic" and failed to respond to treatment; blood marked by the presence of "target" corpuscles, bizarre poikilocytes, some erythroblasts and stippled red cells; red corpuscles showed marked resistance to destruction in hypotonic saline solution; marked erythroblastosis of the sternal marrow; increased osteoporosis and thinning of the cortex of the bones. The father, and the brother aged 30, found to have splenomegaly, icterus and the same abnormalities of the red corpuscles. Microcytosis, stippling, target corpuscles and increased resistance to hypotonic saline solution found in the blood of the mother and very slight changes in the blood of two sisters. Slight splenic enlargement in two children of one of the sisters.

M. D., a youth aged 18, unmarried, first appeared at the Harriet Lane Home of the Johns Hopkins Hospital at the age of 10, complaining of pain in the abdomen. He was born in Baltimore in 1921 of Sicilian parents. Since the age of 2 years the skin and eyeballs had appeared yellowish, according to his mother, and on several occasions he had complained of pain in the right side of the abdomen. With these attacks, however, no increase in the yellowness of the skin or eyeballs nor any alteration in the color of the urine or stools had

TABLE 1.—Differential Counts of the Nucleated Cells in Material Obtained by Sternal Puncture from Patients M. D., V. S. and B. G.*

	Normal, per Cent	M. D. per Puncture Biopsy		V. S.	B. G.
Leukocytes					
Myeloblasts.....	2.0	0.6	1.8	...	1.0
Undifferentiated myelocytes (A)	5.0	1.2	1.2	2.5	1.0
.....	12.0	3.4	5.2	13.5	6.5
Eosinophils.....	1.5	1.2	...	...	...
Basophils.....	0.3	0.2	...	...	...
Metamyelocytes					
Neutrophils.....	22.0	6.8	5.4	21.0	11.0*
Eosinophils.....	...	0.7	0.8	0.5	...
Polymorphonuclears					
Neutrophils.....	20.0	6.0	5.0	20.0	20.5
Eosinophils.....	2.0	1.2	0.4	1.0	2.0
Basophils.....	0.2	...	...	...	...
Lymphocytes.....	10.0	4.5	4.5	9.0	26.5
Plasma cells.....	0.4	0.2	...	...	...
.....	2.0	0.5	...	1.0	1.5
.....	0.2	...	...	...	...
.....	...	0.5	0.8	...	...
.....	...	0.2	...	...	...
Megnkaryocytes.....	0.4	...	...	...	...
Erythrocytes					
Primitive erythroblasts.....	...	2.5	1.2	...	...
Macroblasts.....	4.0	8.5	4.8	2.0	2.0
Normoblasts.....	18.0	61.5	68.6	27.0	7.0

* In the case of M. D. smears were also made of marrow obtained at biopsy, and the differential count on these is also given.

been noticed. There had been no illness suggestive of malaria. The patient was undernourished. There was definite jaundice of the skin and scleras. The liver was not palpable. The spleen was enlarged and its edge could be felt two finger-breadths below the costal border. Otherwise the physical examination was negative.

Laboratory examination revealed erythrocytes 4.28 million per cubic millimeter content, hemoglobin 7.5 Gm., volume of packed red cells 27.5 cc., mean corpuscular volume 65 cubic microns, mean corpuscular hemoglobin 18 micromicrograms and mean corpuscular hemoglobin concentration 27 per cent. The icterus index varied from 13 to 28. The serum bilirubin (van den Bergh) was 4 mg. per hundred cubic centimeters. The

7. Smith, F. L. 2d; Rathmell, T. K., and Marcil, G. E.: The Early Diagnosis of Acute and Latent Plumbism, *Am. J. Clin. Path.* 8: 471-509 (Sept.) 1938.

Dr. Murray Fisher and Miss Regina Weistock brought two of these cases to our attention.

From the Department of Medicine, the Johns Hopkins University School of Medicine, and the Medical Clinic, the Johns Hopkins Hospital.

1. Cooley, T. B.; Witwer, E. R., and Lee, Pearl: Anemia in Children with Splenomegaly and Peculiar Changes in Bones: Report of

Cases, *Am. J. Dis. Child.* 34: 347-363 (Sept.) 1927.

2. Whipple, G. H., and Bradford, W. L.: Racial or Familial Anemia of Children Associated with Fundamental Disturbances of Bone and Pigment Metabolism (Cooley-von Jaksch), *Am. J. Dis. Child.* 44: 336-365 (Aug.) 1932.

fragility test on two occasions showed a slightly increased resistance of the erythrocytes, hemolysis beginning in 0.42 per cent saline solution and being complete in 0.28 per cent. In a specimen of normal blood hemolysis commenced at 0.42 per cent and was complete at 0.32 per cent. The reticulocyte count was 6.6 per cent. The stained smear showed marked aniso-



Fig. 1.—Patient M. D.

cytosis, poikilocytosis and hypochromia of the erythrocytes as well as a moderate number of stippled cells, but no nucleated red cells were observed. The total and differential leukocyte counts, the platelets, bleeding time, clotting time and clot retraction were all normal. No sickling could be demonstrated. The blood Wassermann reaction was negative. The urine was negative for bile but positive for urobilin. Roentgenograms of the head and long bones were considered normal. The jaundice and the blood picture were the subject of much speculation, but no diagnosis was made. The patient was observed for one year. No significant change in the degree of jaundice or in the results of blood examination was noted.

He next appeared at the age of 17, in December 1938, when he was admitted to the medical service with mild bronchopneumonia, from which he recovered quickly. The interval history revealed good general health. He had been working as a barber. In addition to the signs of pneumonia, the physical examination revealed definite although slight icterus of the skin and scleras, slight exophthalmos and a spleen which was readily palpable 3 cm. below the costal border. The edge was rounded and the entire organ seemed somewhat nearer the midline than usual. The liver was not enlarged, the cranium seemed normal in shape (fig. 1) and there was no pallor.

On laboratory examination, as had been noted seven years before, the red corpuscles were small and poorly filled with hemoglobin (table 2). Their mean diameter in wet films was 7.03 microns and the mean corpuscular thickness 1.68 microns. In the stained smear (fig. 2) there was considerable anisocytosis, poikilocytosis and hypochromia, as well as many cells with an outer rim of hemoglobin-containing material and a central area of the same density separated by an intervening ring of lighter staining material to which the name "target corpuscles" has been applied.³ There were numerous stippled cells, but nucleated red blood cells were found only after the injection of epinephrine (from 4 to 6 per 200 leukocytes).

In wet films of blood numerous poikilocytes of very bizarre forms were present. These included narrow irregular bands, curled and twisted in various shapes and forming the letters T and I, as well as pear-shaped and elliptic forms. Similar preparations made from the blood of a patient with hypochromic microcytic anemia of the type resulting from iron deficiency failed to show these bizarre forms of red corpuscles. It is noteworthy that long, filamentous processes extending out from the red corpuscles and the oat-shaped and sickled forms characteristic of sickle cell anemia were not found.

No malaria or other parasites were observed in wet or stained films of blood, in thick drops or in blood obtained after the injection of epinephrine and concentrated.

The unusual reaction of the red corpuscles to hypotonic solutions of sodium chloride attracted our attention. Although hemolysis commenced in 0.48 or 0.45 per cent saline solutions as it did in specimens of normal blood, an increase in the degree of hemolysis did not take place quickly as it normally does (fig. 3). In the specimens of normal blood hemolysis was well marked in 0.42 per cent saline solution, whereas in the patient's blood the increase in the degree of red cell destruction in tubes containing more dilute saline solutions was very gradual, and well marked hemolysis first occurred in 0.30 per cent salt solution. The increased resistance of many of the red corpuscles to the action of hypotonic solutions was further indicated by the fact that, whereas complete hemolysis with no remaining residue of red cells took place in from 0.36 to 0.30 per cent saline solutions in the case of normal blood, a residue of cellular material persisted sometimes even in tubes containing 0.03 per cent sodium chloride. The concentration of salt solution necessary to produce complete hemolysis varied on different occasions between 0.18 and 0 per cent. The pale gelatinous scum remaining in the hypotonic solution of salt was examined microscopically and found to consist of "shadows" of red corpuscles.

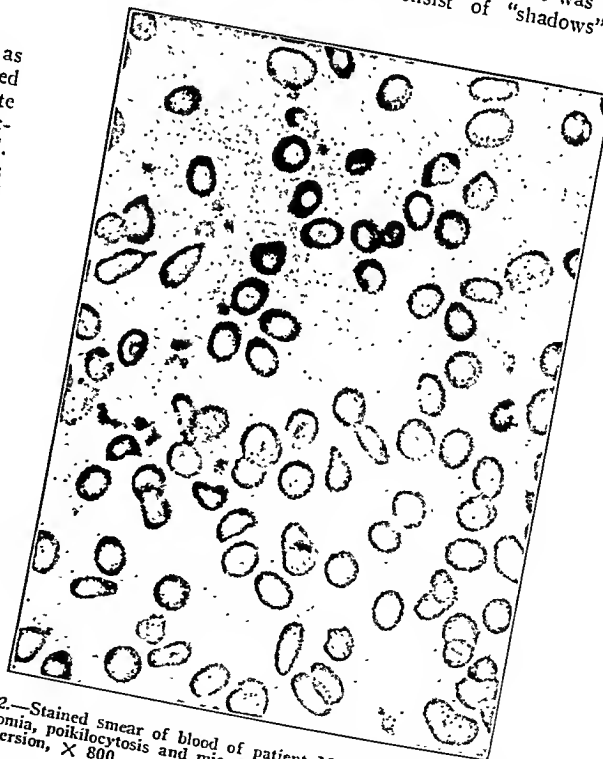


Fig. 2.—Stained smear of blood of patient M. D., showing the marked hypochromia, poikilocytosis and microcytosis as well as a few target cells. Oil immersion, X 800.

A fragility test carried out on the blood of a patient whose red cells, as the result of iron deficiency, were as small and hypochromic as those of this patient gave the following results: beginning hemolysis at 0.48 per cent, well marked hemolysis at 0.42 per cent, complete hemolysis at 0.30 per cent.

3. Barrett, A. M.: Special Form of Erythrocyte Possessing Increased Resistance to Hypotonic Saline, *J. Path. & Bact.* 46: 603-618 (May) 1938.

4. Wintrobe, M. M., and Beebe, R. T.: Idiopathic Hypochromic Anemia, *Medicine* 12: 187-243 (May) 1933.

Washing the red corpuscles several times in physiologic solutions of sodium chloride did not alter their resistance to hypotonic solutions (beginning hemolysis at 0.48 per cent, well marked hemolysis at 0.24 per cent, complete hemolysis at 0.18 per cent; corresponding values for normal blood: 0.48, 0.39 and 0.30 per cent). Dilutions of the blood also were made in erythrocyte counting pipets, the diluting fluids being various strengths of salt solution. In a typical experiment, 30 per cent hemolysis was found in 0.48 per cent sodium chloride solution, 63 per cent in 0.30 per cent and 100 per cent in 0.18 per cent.

The icterus index ranged from 10 to 35. The serum bilirubin (van den Bergh) was 1.8 to 2.2 mg. per hundred cubic centimeters, indirect. No hemolysins could be demonstrated by the Donath-Landsteiner test for autohemolysins.

After the subsidence of the pneumonia, the leukocyte count was 8,500 per cubic millimeter. The differential count was as

microscopically. Roentgenographic examinations of the gastrointestinal tract for a possible source of chronic blood loss were negative. Analysis of fasting gastric contents revealed values of 8 for free and 22 for total acid. The basal metabolic rate was +2. The bromsulphalein test of liver function using 5 mg. per kilogram showed 5 per cent retention in one half hour, a normal value. A skin test with an extract of the fava bean was negative. The serologic test for syphilis (Eagle) was negative.

Roentgenograms were interpreted as follows: The long bones showed evidence of increased osteoporosis and thinning of the cortex, particularly the femurs (fig. 6). The skull was normal.

Although the blood showed the hypochromia and microcytosis typical of iron deficiency, there was no response to ferrous sulfate 1.2 Gm. daily by mouth for twelve days (fig. 7) or to the same daily dose of iron plus 0.38 Gm. of copper sulfate

TABLE 2.—Summary of Clinical and Laboratory Data of Fourteen Persons Examined*

Family.....	Doc.									S.	Gab.							
	F		M		Children			Grandchildren			F		M		Children			
	CD	JD	PD	MD	RD	ADB	FB	CB	VS		BG	SG	VGC	AG	EG			
Patient.....	♂	♀	♂	♂	♀	♀	♂	♂	♂	♂	♀	♀	♀	♂				
Sex.....	57	55	30	17	13	27	8	7	40	54	51	25	21	19				
Age.....																		
History																		
Malaria.....	+	±	0	0	0	0	0	0	0	0	0	0	0	0				
Jaundice.....	+	+	0	+	0	0	0	0	0	0	0	0	0	0				
Physical examination																		
Jaundice.....	0	0	0	+	0	0	0	0	+	±	0	0	0	0				
Splenomegaly.....	+	0	+	+	0	0	+	±	+	0	0	0	0	0				
Urobilinuria.....	+	..	+	+	..	0	0	0	+	+	..	..	..	..
Blood group.....	B	A	B	0	0	B	B	A	0	0	0	0	A	0				
Blood examination																		
Erythrocytes in millions, cu. mm.....	5.6	6.3	6.2	6.2	5.4	5.4	5.2	5.0	6.3	5.5	4.5	5.2	4.1	5.7				
Hemoglobin, Gm. per 100 cc. of blood.....	10.8	12.6	12.0	10.1	13.0	12.8	13.2	14.0	13.6	12.1	14.0	12.0	12.0	12.0				
Volume of packed red cells, cc. per 100 cc. of blood....	37	38	41	36	38	41	41	39	42	41	43	43	38	45				
Mean corpuscular volume, cubic microns.....	67	61	66	57	70	75	79	77	67	75	66	83	64	79				
Mean corpuscular hemoglobin, micromicrograms.....	20	20	20	16	24	24	26	23	22	22	31	23	30	23				
Mean corpuscular hemoglobin concentration, percent.....	29	33	30	28	34	31	32	36	33	29	32	29	32	29				
Icteric index of plasma.....	10	8	12	10-35	4	4	4	4	9-15	12	10	10	11	11				
Van den Bergh test.....	tr.	tr.	tr.	ind.	0	0	0	0	ind.	ind.	tr.	tr.	tr.	tr.				
				1.1-2.2					0.9	0.0								
Reticuloocytes, per cent.....	4.2	2.3	1.8	3.6	0.8	1.2	0.4	0.2	1.4	1.6	0.6	1.6	0.2	0.4				
Abnormal erythrocytes																		
Hypochromia.....	++	+++	++	++	+	0	+	0	++	+++	0	++	0	++				
Anisocytosis.....	++	++	++	++	0	0	0	0	++	++	++	++	0	++				
Poikilocytosis.....	++	+	++	++	0	0	0	0	+	+	0	++	0	+				
Target cells, average number per oil immersion field..	2	4	12	8	0	0	0	0	4	6	0	8	0	3				
Polychromatophilia.....	+	+	+	0	0	0	0	0	0	0	0	+	0	0				
Stippling, average number per 40 oil immersion fields	5	2	0	29	0	0	0	0	10	19	4	12	3	15				
Nucleated red cells, number per 200 leukocytes.....	0	0	1	0†	0	0	0	0	0	0	0	0	0	0				
Spherocytes.....	oc.	oc.	ra.	ra.	ra.	0	0	0	0	0	oc.	ra.	ra.	ra.				
Fragility test																		
Hemolysis begins.....	0.45	0.45	0.48	0.49	0.48	0.45	0.45	0.42	0.45	0.43	0.43	0.42	0.43	0.45				
Hemolysis well marked.....	0.30	0.36	0.30	0.33	0.45	0.42	0.42	0.39	0.30	0.30	0.45	0.30	0.42	0.26				
Hemolysis complete.....	0.21	0.24	0.03	0.03	0.33	0.33	0.33	0.30	0.21	0.21	0.23	0.07	0.23	0.21				

* In this table and in the case reports, the following abbreviations are used: + indicates present, ++ moderate, +++ marked, ± doubtful, 0 absent, ra. rare, oc. occasional, tr. trace, ind. indirect reaction.
† In this case there were found 4 to 6 nucleated red cells per 200 leukocytes following the injection of epinephrine.
In every subject normal values were obtained for the total and differential leukocyte counts and for the platelet counts, and the serologic test for syphilis (Eagle) was negative.

follows: juvenile neutrophils 3 per cent, segmented neutrophils 47 per cent, eosinophils 8 per cent, basophils 1 per cent, lymphocytes 34 per cent, monocytes 7 per cent. Platelets were normal in number and the bleeding and coagulation times were normal.

The sternal bone marrow was obtained by puncture and by biopsy (figs. 4 and 5). The results were the same by the two methods, and the details are given in table 1: The essential feature was a striking increase in nucleated red blood cells, especially normoblasts. Younger cells were present, but even the least mature erythroblasts did not have the appearance of the megakaryoblasts of pernicious anemia. There was, in addition, a slight increase in eosinophils. It is noteworthy that, in spite of the erythroblastosis of the marrow, no normoblasts were found in the circulating blood except after the injection of epinephrine.

The urine gave a negative test for bile, and sometimes a negative and at other times a faintly positive reaction for urobilin. The test for urobilinogen in fresh urine was positive in a dilution of 1 to 20 (control 1 to 5). The stool was repeatedly negative grossly and by guaiac test for blood, as well as

(in divided doses) over a thirteen day period. Daily reticulocyte counts revealed an irregular fluctuation between 1 and 5 per cent. On the ninth day of treatment with iron and copper, the reticulocytes increased to 7.2 per cent. At this time there were a slight fall in the red cell values and a rise in the serum bilirubin level.

Examination of the blood one month after discharge from the hospital revealed no significant change.

C. D., the father of M. D., aged 57, was born in Sicily. He had had jaundice and a large abdomen throughout childhood. He was said to have been born with malaria and to have had it until the age of 20. He had had no chills in the past twenty years. A "tumor" in the abdomen had been noted on several occasions, and in 1932, when he came to this hospital because of pain in the epigastrium, examination revealed that he had an enlarged spleen. On examination of the blood it was found that the erythrocyte count was somewhat high (6.20 million) and there were microcytosis and hypochromia (mean corpuscular volume 72 cubic microns, mean corpuscular hemoglobin 17 micromicrograms, mean corpuscular hemoglobin concentration

25 per cent). Concentration of dye by the gallbladder was poor. Nevertheless, his general health had been satisfactory enough for him to be able to do hard labor. He returned in 1939 at our request, when examination revealed no definite jaundice; the liver was not palpable but the spleen could be felt easily, descending 3 cm. below the left costal border. Laboratory studies (table 2) revealed a normal erythrocyte count with

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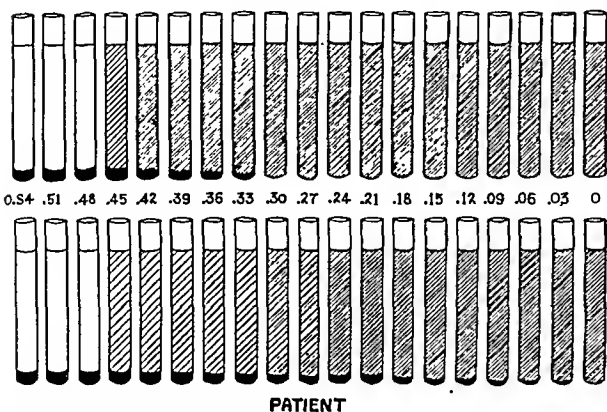


Fig. 3.—Diagrammatic representation of results of fragility test of blood of patient M. D. and of normal blood. The clear tubes indicate no hemolysis, light hatching indicates slight hemolysis, heavy hatching marked hemolysis. Note the early appearance of well marked hemolysis and the disappearance of all cell residue in the sample of normal blood, and the slow development of hemolysis and persistence of corpuscular residue in the patient's blood.

microcytosis, hypochromia, stippled cells, target cells and numerous poikilocytes. There was, in addition, increased resistance of the erythrocytes to hypotonic saline solution, as well as slightly elevated serum bilirubin and urobilinuria.

J. D., the mother of M. D., aged 55, was likewise born in Sicily. She was not known to be related to her husband before marriage, but their families had resided in the same village for several generations and therefore relationship could not be excluded with certainty. There was an uncertain history of malaria in childhood. In 1930 she was found to be jaundiced and operation revealed cholecystitis and cholelithiasis. The spleen has never been palpable. Laboratory studies showed a high erythrocyte count; microcytosis, hypochromia, stippling, poikilocytes of bizarre shape and target corpuscles, slightly increased resistance of the erythrocytes to hypotonic saline solution and normal serum bilirubin (table 2).

CHILDREN of C. D. and J. D.—1. A boy, Sicily, died at 7 months of "malaria."

2. A girl, Sicily, died at 6 months of "malaria."

3. P. D., a man aged 30, born in Sicily, had always been well, with no history of malaria or jaundice. He had a marked funnel breast. The liver was at the costal border. The spleen was easily palpable 1 cm. below the costal margin. There were a high normal erythrocyte count, microcytosis and hypochromia, occasional spherocytes as well as bizarre poikilocytes, target cells, occasional normoblasts, increased resistance of the erythrocytes to hypotonic saline solution and slightly increased serum bilirubin as well as urobilinuria (table 2).

4. A. D. B., a woman aged 27, born in Sicily, had never been ill. The spleen was not palpable and results of laboratory studies were negative except for slight microcytosis and hypochromia (table 2). She was married and had three children.

4a. F. B., a boy aged 8, had a definitely palpable spleen but results of other studies were essentially negative (table 2).

4b. C. B., a boy aged 7, had a questionably palpable spleen. Results of other studies were negative (table 2).

4c. J. B., a boy aged 19 months, was not examined.

5. M. D., a boy aged 17, was our first patient.

6. R. D., a girl now aged 13, had always been well. Microcytosis and hypochromia of the erythrocytes were the only abnormal features (table 2).

The occurrence in several members of this Sicilian family of splenomegaly, microcytosis, hypochromia and increased resistance of the erythrocytes brought to mind two Italian patients with somewhat similar abnormalities who had been examined two years before. They were asked to return and additional studies were obtained on both, as well as on the entire family of one of them (table 2):

PATIENT V. S.—A Neapolitan found to have splenomegaly, microcytosis, hypochromia, target corpuscles, marked stippling of the red cells and increased resistance of the corpuscles to hypotonic saline solutions.

V. S., a man aged 40, born in Naples, stated that he had not had malaria, jaundice or swelling of the abdomen. He had three children, two by his first wife, who was Italian, and the third by his second wife, who was Irish. The last child was said to be well but nothing is known about the first two. None were available for study. This patient had been observed in the dispensary of the Johns Hopkins Hospital for several years because of dizzy spells and tinnitus, associated with fear. His personal misfortunes give adequate justification for the latter. On examination in 1936 the spleen was discovered to be palpable 3 cm. below the costal margin; a somewhat high erythrocyte count (6.44 million), microcytosis, hypochromia, marked stippling of the red corpuscles, increased resistance of the cells to hypotonic saline solutions and an icterus index of 20 were found. Analysis of the blood and urine for lead yielded normal values (0.05 mg. per hundred grams of blood, 0.07 mg. per twenty-four hour specimen of urine) and there was nothing in the history or physical examination to suggest lead poisoning. Furthermore, an attempt to mobilize lead from the bones by giving ammonium chloride was unsuccessful. The bromsulphalein test of liver function showed 15 per cent retention.

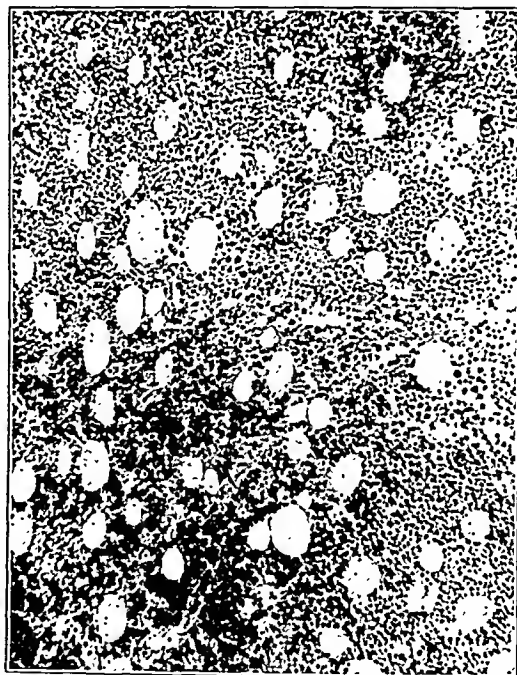


Fig. 4.—Sternal bone marrow biopsy of patient M. D., showing marked hyperplasia and erythroblastosis. Hematoxylin and eosin stain, low power magnification, $\times 125$.

Reexamination in 1939 revealed a man of short stature and large head with a rather high forehead and narrow palpebral orifices with drooping outer corners (fig. 8). The spleen was easily felt 4 cm. below the left costal border. The laboratory studies, like those three years before, showed microcytosis, hypochromia, increased resistance of the erythrocytes to hypotonic saline solution, elevated serum bilirubin with urobilinuria and a striking degree of basophilic stippling of the erythrocytes (table 2). Roentgenograms of the skull and long bones showed

no abnormalities. Sternal marrow puncture revealed a slightly greater proportion of normoblasts than is normal (table 1). Treatment with ferrous sulfate 1.2 Gm. daily was without effect on the blood.

PATIENT B. G. and FAMILY G.—An Italian found to have slight anemia, microcytosis, hypochromia, target corpuscles, very marked stippling, increased resistance of red corpuscles



Fig. 5.—Smear of material obtained from patient M. D. at sternal bone marrow biopsy, showing numerous nucleated red cells. Wright's stain, oil immersion, $\times 800$.

to hypotonic saline solutions and slight icterus. Similar observations on one daughter, and less marked changes in the blood of one son. Mother's blood found to be somewhat macrocytic. Slight macrocytosis in the blood of one daughter.

B. G., a man aged 54, married, was born in a hilly part of central Italy, where, according to the patient, malaria is unknown and no children have been noted to have jaundice, large heads or large abdomens. He married a woman from the same locality and came to America thirty-four years ago. He never had malaria or jaundice to his knowledge and had never been exposed significantly to lead. He had numbness and tingling of the fingers in cold weather for several years, and acrocyanosis had been noted on examination. It was this symptom which brought him to the hospital. In general his health had been good. Laboratory studies showed hypochromia and microcytosis, numerous target cells (fig. 9), increased resistance of the erythrocytes to hypotonic saline solution, elevated serum bilirubin with urobilinuria, and marked basophilic stippling of the erythrocytes as well as occasional normoblasts. Analysis of the blood for lead gave a normal value (0.05 mg. per hundred grams). The bromsulphalein retention was 7 per cent and the plasma uric acid was 4.4 mg. per hundred cubic centimeters. Reexamination (table 2) confirmed the data just noted. The scleras were slightly icteric. At times the spleen has been thought to be palpable by some observers. The cranium is normal in shape.

S. G., aged 51, wife of B. G., was born in the same part of central Italy as was her husband. She had never had malaria or jaundice and recalls no jaundice in any member of the family. She had had one attack of pain in the right upper abdominal quadrant, but the roentgenographic appearance of the gall-bladder and gastrointestinal tract was normal. The liver and spleen were never palpable and no jaundice was noted on many examinations. Examination of the blood revealed moderate macrocytosis and occasional spherocytes (table 2).

CHILDREN of B. G. and S. G. (all born in America).—1. V. G. C., a woman aged 25, married, stated that at the age of

14 acrocyanosis was noted in the fingers; at 22 she was found to have an apical pulmonary lesion, considered to be tuberculous, which is now arrested. There was no history of malaria or jaundice. The spleen was never palpable. Laboratory studies showed hypochromia of the erythrocytes, target cells, stippling and greatly increased resistance to hypotonic saline solution (table 2).

2. A. G., an unmarried woman aged 21, had never had jaundice or malaria. The spleen was not palpable. Examination of the blood showed slight anemia and slight macrocytosis (table 2).

3. E. G., an unmarried man aged 19, had always been well except for frequent infections of the upper respiratory tract. There was no jaundice, and the spleen was not palpable. The erythrocytes showed hypochromia, target cells, stippling and increased resistance to hypotonic saline solution (table 2).

SUMMARY OF OBSERVATIONS

The most striking observation in the cases we have described was the presence in the blood of a degree of poikilocytosis and hypochromia which was entirely out of proportion to what might have been expected from the slight anemia present. These morphologic abnormalities were found, moreover, even in the absence of anemia. In addition, stippling was noted in a number of the individuals examined. In two cases this was so marked that poisoning with a heavy metal was suspected. Other signs of disturbed erythropoiesis were usually lacking, although slight polychromatophilia was observed in a few instances and an occasional normoblast was found in the blood of two individuals (P. D. and B. G.). It should be mentioned, however, that pronounced erythroblastosis was observed in the sternal bone marrow of another patient (M. D.) in whose blood no normoblasts were found except after the injection of epinephrine. Slight osteoporosis was demonstrated roentgenologically in this case.

The poikilocytosis was even more striking in wet films of blood than in fixed preparations, and very bizarre forms such as those described in Cooley's anemia were numerous in some instances. In the stained films an unusual type of poikilocyte was frequently seen which, because of the presence of a hemoglobin-containing circle in the center of a pale ring-like corpuscle, has been called a target cell.² The cells have been recently studied by Barrett³ and others,⁴ whose observations will be described shortly.



Fig. 6.—Femur of patient M. D. (A) compared with that of a healthy boy of the same age (B). Note the thinness of the cortex and the general decreased density.

5. Haden, R. L., and Evans, F. D.: Sickle Cell Anemia in White Race: Improvement in Two Cases Following Splenectomy, *Arch. Int. Med.* 60: 133-142 (July) 1937.

A marked degree of resistance of the red corpuscles to the hemolyzing effects of hypotonic saline solutions attracted our attention at once. This resistance was so great that in several instances a pale, somewhat gelatinous layer remained even in tubes containing distilled water. The decreased fragility of the cells was also

In addition to the abnormalities of the blood, in five instances splenomegaly, slight icterus and urobilinuria were found. It may also be noted that in spite of thorough study of our three original patients (M. D., V. S., B. G.), no etiologic agent was discovered and, in the two instances in which it was attempted, iron therapy failed to alter the microcytosis or hypochromia.

All of the abnormalities mentioned, namely poikilocytosis, target cells, hypochromia, stippling, increased corpuscular resistance, splenomegaly and bilirubinemia or urobilinuria, were found in four of the persons examined (C. D., P. D., M. D., V. S.); in four more (J. D., B. G., V. G. C. and E. G.) only splenomegaly was lacking; in two children (F. B. and C. B.) there was slight splenic enlargement without significant changes in the blood; of the remaining four persons, all females, there was microcytosis without other significant changes in two (R. D. and A. D. B.) and slight macrocytosis as well as stippling in two (S. G. and A. G.). Thus none of the fourteen persons studied lacked some suggestion of hemopoietic disorder and in eight the abnormalities were well marked (fig. 10). It should be emphasized that in none of these individuals were there complaints referable to the blood disorder. Three generations were studied in one family and two in another. All of the subjects of this report were Italians.

RELATION TO OTHER BLOOD DISORDERS

The condition we have described brings to mind three well recognized familial disorders of the blood, namely familial hemolytic icterus, sickle cell anemia

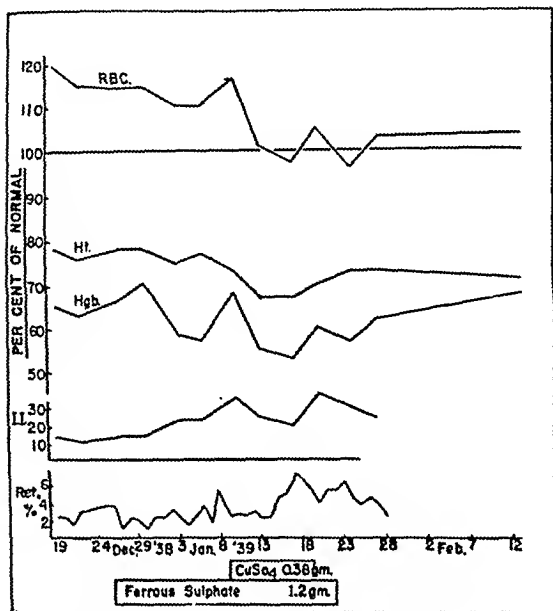


Fig. 7.—Blood data of patient M. D., showing the ineffectiveness of treatment with iron and copper. The red cell count (R. B. C.), hemoglobin (Hgb.) and volume of packed red cells (Ht.) are presented in proportion to the average values in the normal male. Note that the red cell count was normal or above normal whereas the hemoglobin and volume of packed red cells were below normal, the former being proportionately lower than the latter. These differences were evident in the low values obtained for mean corpuscular volume, mean corpuscular hemoglobin and mean corpuscular hemoglobin concentration. Icterus index and reticulocytes are recorded in absolute terms, the former in units (normal 5 to 7), the latter in percentage. The figure for copper sulfate represents the total dose, whereas that for ferrous sulfate is the daily dose.

indicated by the fact that the supernatant fluid in tubes containing red corpuscles in hypotonic solutions did not become a deep red (well marked hemolysis) until solutions of 0.36 to 0.30 per cent were used (fig. 3), whereas in normal blood hemolysis is usually well marked in a 0.42 per cent solution. That the increased resistance of the corpuscles could not be attributed solely to their small size was suggested by the fact that the fragility of the corpuscles of a patient with hypochromic microcytic anemia of the iron deficiency type was quite normal.

Although the volume of packed red cells and particularly the hemoglobin content of the blood were moderately or slightly reduced below normal in seven instances, the red cell counts were normal or even unusually high (fig. 10). The red cell count of our first patient was 6.43 million when the hemoglobin was 10.3 Gm. and the volume of packed red cells 36.7 cc. This erythrocytosis is of interest because, in cases of hypochromic microcytic anemia due to iron deficiency, after effective treatment the increase in the red cell count may be so rapid that it may be well above normal when the hemoglobin and volume of packed red cells are still low and microcytosis and hypochromia are still present.⁴ The high red cell counts found in our cases may represent an attempt on the part of the bone marrow to compensate for the formation of faulty red corpuscles by producing many of them.



Fig. 8.—Patient V. S.

and Cooley's erythroblastic anemia. In all of these conditions there is found evidence of increased blood destruction and increased but faulty blood formation leading to hyperplasia of the bone marrow and often accompanied by characteristic changes in the bones. It is of interest that these are the only hemopoietic disorders in which pronounced abnormalities in corpuscular resistance to hemolysis have been demonstrated.

In the disorder we have described, thin, pale red corpuscles very resistant to the hemolytic action of hypotonic saline solutions contrast with the thick, dark spherocytes extremely sensitive to hypotonic solutions which are characteristic of familial hemolytic icterus. In the one condition there is only slight evidence of hemolytic anemia, in the other marked blood destruction is characteristic. Both conditions are familial and in both evidence of active erythropoiesis is found.

In sickle cell anemia, as in the blood of our patients, thin and pale and target corpuscles are found⁵ and there may be increased resistance of the red cells to hypotonic saline solution.⁶ There is hemolytic anemia of variable degree and accompanying this is found evidence of active blood regeneration (erythroblastosis, reticulocytosis, stippling, polychromatophilia, osteoporosis) and splenomegaly (some cases). A benign form, the

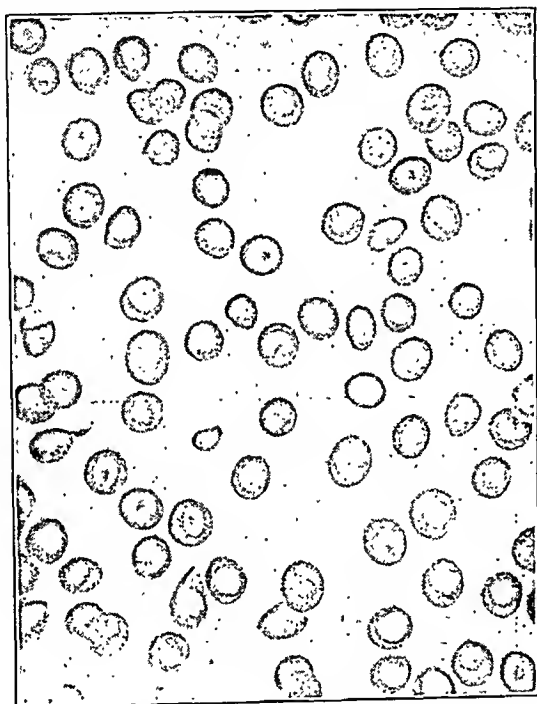


Fig. 9.—Stained smear of blood of patient B. G., showing marked hypochromia, poikilocytosis and target cells. Oil immersion, $\times 800$.

sickle cell trait, is well recognized. It is a curious fact that, of the five acceptable families of sickle cell anemia in white persons,⁵ four were of Greek, Italian or Sicilian parentage. Siekling was repeatedly looked for in wet films of the blood of our patients but was never found.

Closest parallelism is found, however, with the condition which Cooley¹ described in Greek, Syrian and Italian children and which has since become known by his name or by the designations erythroblastic anemia, Mediterranean disease and thalassemia.² In the typical case of Cooley's anemia there is found erythroblastosis out of all proportion to the severity of the anemia, reticulocytosis, hypochromia, leukocytosis and some evidence of increased blood destruction as well as splenomegaly and even hepatomegaly, a peculiar facial appearance which is described as mongoloid, and increased porosity of the medullary portion of the bones as well as perpendicular hairlike striations in the

calvarium. In many instances, more than one child in a family has been affected.⁷

Examination of reports of cases of Cooley's anemia reveals a number of important features of the disease which have received no emphasis. The degree of erythroblastosis is variable, and in some of the reported cases which were typical in all other respects few or no nucleated cells were found.⁸ Stippling⁹ and polychromatophilia also occur. The anemia is hypochromic and microcytic,¹⁰ yet it fails to respond to iron therapy.¹⁰ Extreme poikilocytosis is common¹ and, although they have received no special attention, target corpuscles are shown in illustrations of the blood in Cooley's anemia.¹¹ Furthermore, although it is often stated that the fragility of the red corpuscles is normal or only slightly decreased in this disease,¹² examination of case reports reveals that the resistance of the cells to hemolysis has often been found to be greatly increased. Thus Cooley and Lee¹³ and Baty, Blackfan and Diamond¹⁴ independently noted that in some instances hemolysis was incomplete even in distilled water. Recently Caminopetros¹⁵ emphasized the significance of this phenomenon and reported increased resistance in all of his thirty-five cases, whereas this was found in none of forty-five cases in which other diseases were present. Finally, the mongoloid facies is not always found.¹⁵

When this more complete picture of Mediterranean disease is taken into consideration, there appears to be great similarity between the disorder discovered in our cases and that found in thalassemia. These conditions have in common their incidence among the peoples residing on the northeastern shores of the Mediterranean, their familial occurrence, the hypochromia and microcytosis resistant to iron therapy, pronounced stippling, target cells, increased resistance of the red corpuscles to the hemolyzing effects of hypotonic solutions, and bone marrow hyperplasia.

Cooley's anemia differs from the condition observed in our cases in that it occurs in children, the anemia is severe and usually fatal, leukocytosis is common, and characteristic changes in the bones as well as a mongoloid facies have been described.

It seems probable, however, that these are merely differences in degree rather than in the fundamental

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9. Capper, Aaron: Nature of von Jaksch's Anemia and Effect of Splenectomy, *Am. J. M. Sc.* **181**: 620-629 (May) 1931. Wollstein and Kreidel.¹¹ Kato and Downey.⁸ Baty, Blackfan and Diamond.¹⁴ Hitzrot.²¹

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11. Wollstein, Martha, and Kreidel, K. V.: Familial Hemolytic Anemia of Childhood—von Jaksch, *Am. J. Dis. Child.* **39**: 115-130 (Jan.) 1930. Holt, L. Emmett, and Howland, John: Holt's Diseases of Infancy and Childhood, revised by L. Emmett Holt Jr. and Rustin McIntosh, ed. 10. New York, D. Appleton-Century Company, Inc., 1936, p. 553, fig. 88.

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13. Cooley, T. B., and Lee, Pearl: Erythroblastic Anemia: Additional Comments, *Am. J. Dis. Child.* **43**: 705-708 (March) 1932.

14. Baty, J. M.; Blackfan, K. D., and Diamond, L. K.: Blood Studies in Infants and in Children: Erythroblastic Anemia; Clinical and Pathologic Study, *Am. J. Dis. Child.* **43**: 667-704 (March) 1932; correction **43**: 1221 (May) (part 1) 1932.

15. Caminopetros, J.: Recherches sur l'anémie érythroblastique infantile des peuples de la Méditerranée orientale: étude morphologique, *Ann. de méd.* **43**: 27-61 (Jan.) 1938; Recherches sur l'anémie érythroblastique infantile des peuples de la Méditerranée orientale: étude anthropologique, étiologique et pathogénique: la transmission héréditaire de la maladie, *ibid.* **43**: 104-125 (Feb.) 1938.

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1537

character of the two disorders. It is likely that the typical cases of Cooley's anemia are extreme examples of the disease and that when the disorder is less severe the patients may reach adult life. We have been able to find reports of seven cases^{15a} in persons over 14 years of age which undoubtedly are instances of Cooley's anemia: namely the case of Mandeville,¹⁶ age 15; that of Dalla Volta,¹⁷ age 30, in which considerable iron pigment was found in the organs, and large cells suggesting the foam cells described by Whipple and Bradford in Cooley's anemia² were noted; three cases reported by Aravantinos and Delijannis,¹⁸ ages 21, 16 and 22; a case of Allen and Childs,¹⁹ age 24; two cases (5 and 14) reported by Caminopetros,¹⁵ ages 14 and 16, and one recently described by Thalheimer, Mezzeti and Gershon-Cohen,²⁰ age 14. Nine other cases in adolescents or adults have been reported, but the data presented are insufficient to permit independent appraisal of the diagnosis. These are the cases of Hitzrot,²¹ age 14; Baty, Blackfan and Diamond,¹⁴ age 18, age 17; Dalla Volta,¹⁷ age 23; Ortolani,²² age 30; Caminopetros,¹⁵ cases 12 and 13, ages 21 and 23; Pontoni,²³ age 14; Signorelli,²⁴ two cases, ages 15 and 21. One case which has been cited²⁵ as an example of survival into adult life is that of Stillman,²⁵ whose patient was known to have been living for the corpuscular fragility was found to be increased (beginning hemolysis at 0.62 per cent, complete hemolysis at 0.44 per cent) rather than decreased, and great improvement followed splenectomy.

When the patients survive to adolescence or adult life, the blood changes have usually been less marked than in classic cases of Cooley's anemia. The lack of leukocytosis, bone changes and mongoloid facies in our cases may be explained on the assumption that these abnormalities may be expected to vary in degree according to the severity of the underlying disturbance.

Cooley's anemia is considered to be familial but it has not been shown to be hereditary. In the reports of cases of this disease the statement is commonly made that the parents are well,²⁶ but no complete examinations have been recorded to support this conclusion. It is noteworthy that Caffey²⁶ expressed the opinion that mild cases occur and that adults with the disease in mild form might transmit the disorder to their offspring. Yet, he stated, he had never found the slightest evidence of erythroblastic anemia, either clinical, hematologic or roentgenologic in the parents of his erythroblastic infants and children.

Recently, however, several Greek and Italian authors, stimulated by Cooley's observations on their compatriots in the United States, have reported extensive studies on members of the families of patients with erythroblastic anemia which afford evidence that this condition is hereditary and that there may be a benign and latent form of the disorder which causes no symptoms and can be recognized only by finding in the blood of such individuals changes similar to those found in Cooley's anemia.

Angelini,²⁷ in a study of twenty-six members of six families, found that nearly all parents and siblings showed two striking features, namely slightly increased bilirubinemia and well marked increase in erythrocyte resistance to hemolysis. Caminopetros¹⁵ found thirty-five cases of erythroblastic anemia in eastern Greece

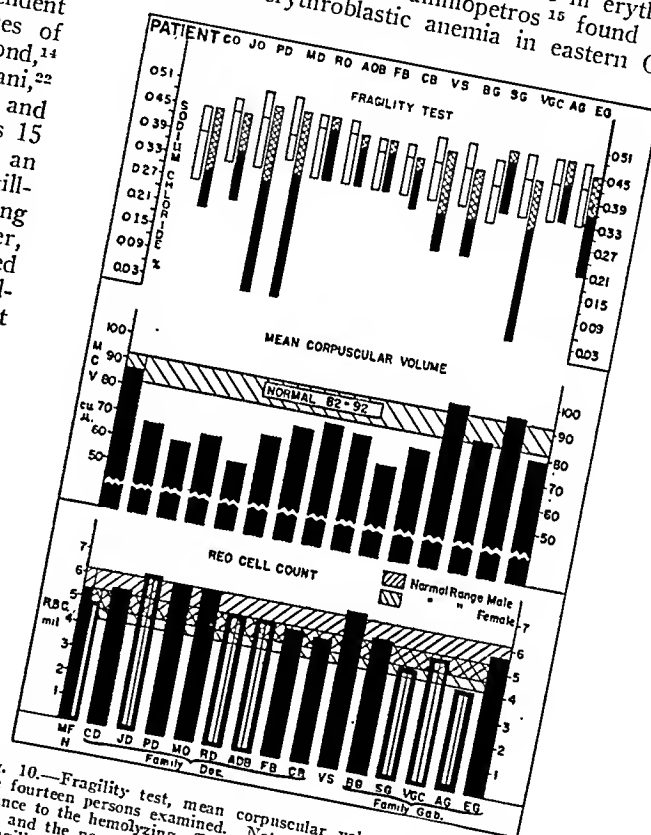


Fig. 10.—Fragility test, mean corpuscular volume and red cell count in the fourteen persons examined. Note the greatly increased corpuscular resistance to the hemolyzing effects of hypotonic saline solution, the microcytosis and the normal or high red cell counts in many of the cases. In the fragility tests the control test on normal blood is indicated by open rectangles, whereas the results for each patient are indicated by the hatched and black rectangles. The hatching represents slight hemolysis, the black represents marked hemolysis. The point at which hemolysis was marked in the controls is indicated by a horizontal line. The red cell count of males is indicated by solid black rectangles, that of females by open rectangles. The column marked N indicates the normal.

and made detailed observations on several generations of four families. In one of these there were as many as ten probable cases of erythroblastic anemia in four generations. In addition, in apparently well members of these families increased corpuscular resistance as well as slight bone changes were demonstrated. It is noteworthy that, in fifteen cases in which data were available for both parents, increased corpuscular resistance was observed in both parents in seven instances and in one parent in the remainder. Caminopetros concluded that the erythrocyte anomaly is a recessive transmitted according to the mendelian law.

- 15a. Since this article was written, two additional cases have been described by D. W. Atkinson (Am. J. M. Sc. 198:376 [Sept.] 1939). The patients were a sister and brother aged 20 and 17 years respectively.
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17. Dalla Volta, Alessandro: Splenomegalia emolitica famigliare eritremica (sindrome di Cooley), *Arch. di pat. e clin. med.* 15:34-74, 1935.
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20. Thalheimer, E. J., Mezzeti, Alfred, and Gershon-Cohen, Jacob: Adolescent Anemia (Mediterranean Anemia) with Report of a Case in an Adolescent, *J. Pediat.* 14:349 (March) 1939.
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22. Ortolani, M.: L'anemia di Cooley in gemelle monocorie, *Lattante* 7:323 (July), 375 (Aug.) 1936.
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24. Signorelli, quoted by Pontoni,²³
25. Stillman, R. G.: A Study of von Jaksch's Anemia, *Am. J. M. Sc.* 153:218-231 (Feb.) 1917.
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27. Angelini, Valentino: Primi risultati di ricerche ematologiche nei familiari di ammalati di anemia di Cooley, *Minerva med.* 2:331-332 (Sept. 30) 1937.

NATURE OF THE HEMOPOIETIC DISORDER

We are inclined to believe that the cases described represent a benign and latent form of the condition first differentiated by Cooley under the title of erythroblastic anemia but later called Mediterranean disease or thalassemia by Whipple and Bradford,¹⁰ who thought that anemia alone is not a diagnostic factor in this disorder and need not be emphasized. Our view would be more convincing if at least one well marked instance of Cooley's anemia had been observed in the families we have studied.²⁸ The hypothesis is supported, however, by the descriptions which have appeared lately of less severe cases with survival to adolescence and even adult life, and by the families in Greece studied by Caminopetros¹⁵ and others which seem to represent grades of severity between the fatal anemia described by Cooley and the benign condition found in our patients.

It seems probable that, as in familial hemolytic icterus and in sickle cell anemia, the hemopoietic disorder in our cases and perhaps also in the cases described by Cooley is the result of an inherited defect in the formation of red corpuscles. The morphologic characteristics of the corpuscles suggest that this defect is one whereby they are formed with an adequate or even excessive corpuscular membrane but containing little substance. Although their diameter may not appear exceptionally small, they are small in volume and thin. In stained preparations they appear pale and ringlike, distorted in shape or resemble targets. Recent observations by Barrett⁸ indicate that target cells seen in dried films are derived from corpuscles which appear bowl shaped in wet films and are probably produced by folding of the corpuscular membrane. He further observed that there was a close correlation between the presence of target corpuscles and increased resistance of the red cells to the hemolytic action of hypotonic saline solutions.

The increased resistance of the corpuscles to hypotonic saline solutions is explained by assuming that a cell which is thin is similar to a bladder which is collapsed and almost empty: as fluid passes into such a cell, it gradually becomes distended but there is no increase in the tension of the cell envelop until the spherical stage is reached. In cells of this type much more fluid needs to be absorbed to produce the spherical shape and the bursting point than in the case of normal cells. This concept is in keeping with the observations of Haden²⁹ and others,³⁰ who have shown that differences in the susceptibility of various types of erythrocytes to hemolysis are due largely to differences in form.

The other characteristics of this disorder can be explained by the assumption that they are due to attempts to compensate for the faulty red cell formation. Many cells are produced (erythrocytosis),

immature cells appear in the blood (stippling, polychromatophilia, erythroblastosis), the bone marrow becomes hyperactive (erythroblastosis) and osteoporosis occurs (x-ray observations), and splenomegaly develops. The bilirubinemia and urobilinuria found in these cases are not readily explained. It is perhaps noteworthy that a few small, dark red corpuscles resembling the fragile spherocytes of hemolytic jaundice were found in the blood of one of our patients (M. D.) and in several members of the two families studied (table 2).

The cause of the defect is obscure. Whipple and Bradford¹⁰ expressed the opinion that Mediterranean disease may be a metabolic disorder or a deficiency disease which results in disturbed erythropoiesis as well as in faulty bone and bodily development and deposition of pigment in the tissues. Others,³¹ noting the retardation of growth observed in cases of Cooley's anemia¹⁰ and the infantilism found in some older patients,³² have sought to attribute the disease to an endocrine disorder. At the present time these views are purely speculative.

SUMMARY

Fourteen individuals, members of three Italian families representing three generations in one family and two in another, have been examined and have been found to have certain abnormalities.

In four, marked poikilocytosis, microcytosis, hypochromia and stippling of the red cells as well as corpuscles resembling targets were observed. In addition there were increased resistance of the red corpuscles to the hemolytic action of hypotonic saline solutions, splenomegaly and bilirubinemia or urobilinuria. One of these patients also had erythroblastosis in the sternal bone marrow and slight osteoporosis.

In four instances all of the abnormalities mentioned except splenomegaly were found. In two children there was slight splenic enlargement without significant changes in the blood. Of the remaining four persons, all females, there was microcytosis without other significant changes in two, and slight macrocytosis as well as stippling in two.

This disorder may be considered to be a benign form of Cooley's anemia or Mediterranean disease.

This condition and Cooley's anemia appear to be the result of an inherited defect in the production of red corpuscles whereby corpuscles are formed with an adequate or excessive membrane which contains little substance. As a result the cells can withstand the hemolyzing effect of hypotonic saline solutions more readily than normal cells. The other characteristics of the disorder are explained by the assumption that they are due to attempts to compensate for the faulty red cell formation.

31. Lehndorff, H.: Die Erythroblastenanämie, *Ergebn. d. inn. Med. u. Kinderh.* 50: 568-619, 1936.

32. Dalla Volta.¹⁷ Aravantinos and Delijannis.¹⁸ Caminopetros.¹⁵

28. Such confirmation has now been obtained. Since completion of this paper we have had an opportunity to study an Italian child with typical Cooley's anemia, as well as her father and mother. The child showed all the characteristics already described. The mother's spleen is palpable. Both parents have slight anemia (father's hemoglobin 11.6 Gm., mother's hemoglobin 9.5 Gm.) of the hypochromic microcytic type and show marked poikilocytosis as well as moderate numbers of stippled and target corpuscles. In hypotonic saline solutions, hemolysis of the father's red cells is complete only at 0.21 per cent, the mother's corpuscles at 0.03 per cent.

29. Haden, R. L.: The Mechanism of the Increased Fragility of the Erythrocytes in Congenital Hemolytic Jaundice, *Am. J. M. Sc.* 188: 441-449 (Oct.) 1934.

30. Castle, W. B., and Daland, G. A.: Susceptibility of Mammalian Erythrocytes to Hemolysis with Hypotonic Solutions: A Function of Differences Between Discoidal Volume and Volume of a Sphere of Equal Surface, *Arch. Int. Med.* 60: 949-966 (Dec.) 1937.

Airsickness.—That airsickness is produced principally by motion (more specifically by acceleration) is indicated by two well known facts. The first of these is that the frequency of airsickness and its severity, where it does occur, is in direct proportion to the amount and duration of the accelerations encountered in flight. The second is that persons with dead labyrinths seldom if ever become airsick. This latter would seem to confirm the general impression that airsickness is entirely an internal ear problem and simply a particular form of vertigo.—Armstrong, Harry G.: *Principles and Practice of Aviation Medicine*, Baltimore, Williams & Wilkins Company, 1939.

THE BIOLOGIC EFFECTS OF ANDROGEN
(TESTOSTERONE PROPIONATE)
IN WOMEN

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In the past year several publications have appeared reporting the use of synthetic androgen (testosterone propionate) in functional gynecologic conditions.¹ The therapeutic results in many cases have been striking, and the question arises as to whether the use of androgen in women is to be considered as purely empiric or as a form of hormonal substitution therapy, correcting a preexisting deficiency. It is of considerable importance, therefore, to know what the biologic properties of androgen are in women. Unfortunately, the majority of the reports on the use of this substance in women consist of purely clinical studies. However, in a few instances attempts were made to determine objectively the biologic effects of male hormone administered to women. Thus it has been shown that testosterone propionate inhibits the gonadotropic hyperactivity of the hypophysis of a castrate woman,² suppresses menstruation,³ produces atrophy of the endometrium⁴ and at the same time induces estrogen deficiency changes in the vaginal smear⁵ with disappearance of the glycogen;⁶ it also inhibits peristalsis of the fallopian tubes.⁷ In addition, it has been noted that in some women signs of virilism appear during the course of treatment with testosterone; viz., enlargement of the clitoris,⁸ acne, hoarseness and hirsutism.⁹ Because of the fact that testosterone propionate can produce such striking somatic effects in women and in view of the current interest in testosterone as a therapeutic agent, we report our experience with the use of testosterone propionate in a series of twenty-five women with normal menstrual cycles. This group was selected out of a larger group of 153 women that have been treated with testosterone propionate during the past two and one half years.

The large group consisted of patients with functional menometrorrhagia, menometrorrhagia associated with fibroids, endometriosis, functional dysmenorrhea, mastalgia and premenstrual tension. The results of our experience with testosterone propionate as a therapeutic agent in the treatment of functional bleeding (Geist,

Salmon and Gaines⁹) and dysmenorrhea¹⁰ have already been reported. Reports on the other conditions will be published. Here we will describe the biologic effects of different doses of testosterone propionate administered over varied periods of time to women with regular menstrual cycles.

THE MALE SEX HORMONES (ANDROGENS)

Because of the recent developments in the chemistry of the steroid sex hormones, new terms have been introduced to designate the different compounds of male sex hormone that have been identified. The term "androgen" is used to designate all compounds that have the characteristic properties of male sex hormone in contradistinction to the estrogens, which are female sex hormones. Three androgens have been found to exist in the organism, androsterone, transdehydro-androsterone and testosterone. The last-mentioned androgen is believed to be the physiologically active substance found in the testes, and the first two are the excretory forms found in the urine. A large variety of androgenic compounds, including testosterone, have been synthesized in the past three years. It has further been found that the activity of testosterone is greatly increased by esterification.¹¹ The propionic acid ester of testosterone is considered to be the most active androgen and has been used almost exclusively in our clinical studies.

EFFECT OF TESTOSTERONE PROPIONATE ON
FEMALE ANIMALS

That pure male hormones have bisexual activity, simulating in some respects the effect of estrogens in female animals, was reported by Butenandt and Kudzus,¹² Korenchevsky, Dennison and Simpson¹³ and Deanesly and Parkes.¹⁴ The estrogen-like properties of the male sex hormones were attributed to their close chemical relation to the estrogenic hormones. It was subsequently shown by Salmon that not only do androgens exercise a direct stimulating effect on the müllerian tract of rats but they also produce follicle growth and corpora lutea in the ovaries of immature rats.¹⁵ Nathanson, Franseen and Sweeney have shown that this gonadotropic effect is mediated through the hypophysis.¹⁶ Furthermore, progestational changes have been produced in the endometrium of rabbits¹⁷ with testosterone and in spayed rats with testosterone propionate.¹⁸ There is evidence, therefore, confirmed in several laboratories, that androgens actively stimulate growth of the muscular and epithelial components of the genital tract of intact, as well as of spayed, immature and mature rodents.

In contrast to these experiments, observers have reported that androgens suppress estrous phenomena in

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The following pharmaceutical houses supplied the testosterone propionate used in this study: Ciba Pharmaceutical Products, Inc., Summit, N. J. (perandren) and the Schering Corporation, Bloomfield, N. J. (oreton).

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2. Salmon, U. J.: *Proc. Soc. Exper. Biol. & Med.* 37:488 (Dec.) 1937.

3. Papanicolaou, G. N.; Ripley, H. S., and Shorr, Ephraim: *Proc. Soc. Exper. & Med.* 37:689 (Jan.) 1938. Gaines and others.⁴

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5. Papanicolaou and others.⁵ Salmon and others.⁶

6. Salmon, U. J.; Walter, R. I., and Geist, S. H.: *Proc. Soc. Exper. Biol. & Med.* 39:467 (Dec.) 1938.

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11. Miescher, Karl; Wettstein, Albert, and Tschopp, Ernst: *Biochem. J.* 30:1970 (Nov.) 1936.

12. Butenandt, A., and Kudzus, H.: *Ueber Androstendion, einen hochwirksamen männlichen Pragensstoff*, *Ztschr. f. physiol. Chem., Hoppe-Seyler's* 237:75 (Nov. 9) 1935.

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16. Nathanson, I. T.; Franseen, C. C., and Sweeney, A. R., Jr.: *Proc. Soc. Exper. Biol. & Med.* 29:385 (Nov.) 1938. Since the completion of this manuscript, the Mazers have reported that continued administration of testosterone produces degenerative changes in the rat ovary (Mazer, Milton, and Mazer, Charles: *Endocrinology* 24:175 [Feb.] 1939).

17. Klein, M., and Parkes, A. S.: *Proc. Roy. Soc., London, s.B.* 121:574 (Feb. 3) 1937.

18. Korenchevsky, Vladimir, and Hall, Kathleen: *J. Path. & Bact.* 45:681 (Nov.) 1937.

mice¹⁹ and rats,²⁰ cause inhibition of ovulation in rabbits²¹ and monkeys²² and suppress menstruation in monkeys.²³ It has been assumed, on the basis of the suppression of the estrous cycle (as determined by the vaginal smears), that androgens are antagonists of the

vaginal biopsy, a vaginal smear and a premenstrual endometrial (suction) biopsy. In all of these cases the premenstrual endometrial biopsies revealed a typical secretory phase indicating a normal ovarian cycle (fig. 1), the vaginal mucosa a normal cornification and layering, and the smears a normal characteristic estrogen effect (fig. 4). The vaginal smears were prepared and stained with fuchsin, as previously described.²⁵

An attempt was made to determine whether variations in dosage or in time of administration influenced the results. The dose administered varied from 60 to 1,000 mg. a month. The androgen was administered intramuscularly in sesame oil in individual doses varying from 10 to 100 mg. In the majority of cases injections were given three times weekly throughout the month; in others the androgen administered was concentrated in the first ten to fourteen days of the cycle, and in still others similar amounts were given only during the latter half of the cycle. Endometrial and vaginal biopsies, as well as vaginal smears, were taken at intervals during and after administration of testosterone propionate.

RESULTS

Doses of 500 Mg. or More a Month.—Effect on Menstruation: Menstruation was delayed from one to two weeks or completely suppressed for from four to six weeks in the patients receiving this dosage. When menstruation occurred, the flow was often diminished



Fig. 1.—Preliminary premenstrual biopsy section showing secretory phase.

estrogens. On the other hand, as Korenchevsky and his co-workers have shown, the vaginal smear studies are misleading in regard to the action of androgens in female animals, since testosterone causes mucification of the vagina.²⁴

As one surveys the literature, one is impressed with the protean character of the androgenic effects in animals. The effects of androgens seem to vary, depending on the type of androgen, the dosage, the duration of the injections and the age and species of the animals. It does not fall within the province of this report to attempt to correlate the vast amount of work which has been reported in this field. However, this brief review will suffice to indicate that the observations and conclusions derived from animal experimentation with testosterone propionate cannot as yet be applied to the human female.

EXPERIMENTAL PROCEDURE

The ages in the twenty-five cases reported here varied from 16 to 37 years. The preliminary study consisted of a general physical and gynecologic examination, a



Fig. 2.—Endometrial biopsy section after the administration of 650 mg. of testosterone propionate, showing atrophy.

in amount. Thereafter the normal menstrual rhythm was reestablished.

Effect on Endometrium: The endometrium at the end of a month of treatment showed absence of the secretory phase and, in most cases, subnormal prolifera-

19. Robson, J. M.: *Proc. Soc. Exper. Biol. & Med.* **35**: 49 (Oct.) 1936.

20. Brozman, L. G.: *Proc. Soc. Exper. Biol. & Med.* **36**: 205 (March) 1937. Nelson, W. O., and Merckel, C. G.: *ibid.* **36**: 823 (June) 1937.

21. Cotte, G.; Martin, J. F., and Mankiewicz, E.: *Gynécologie* **36**: 561 (Oct.) 1937.

22. Zuckerman, S.: *Lancet* **2**: 676 (Sept. 18) 1937.

23. Hartman, C. G.: *Proc. Soc. Exper. Biol. & Med.* **37**: 87 (Oct.) 1937. Zuckerman.²²

24. Korenchevsky, Vladimir; Dennison, Marjorie, and Hall, Kathleen: *Biochem. J.* **31**: 780 (May) 1937.

25. Salmon, U. J., and Frank, R. T.: *Proc. Soc. Exper. Biol. & Med.* **33**: 612 (Jan.) 1936.

tion. The maximum regressive changes were noted approximately between one and two weeks after the cessation of the testosterone therapy, at which time the endometrium was often found reduced to a state of hypoplasia or atrophy (fig. 2), ordinarily found only



Fig. 3.—Endometrial biopsy section six weeks after discontinuation of testosterone propionate, showing restoration to the normal secretory phase. Menstruation occurred six days later.

many years after the menopause. Signs of regeneration began to appear shortly thereafter. Further endometrial biopsies indicated a rapid restoration of the normal proliferative and secretory pattern within the following three or four weeks.

Effect on Vagina: Doses of 500 mg. or more given throughout one month resulted in regressive changes in the vaginal smear (estrogen deficiency changes) resembling those of the menopause type of smear. The regressive changes began to appear three weeks after the beginning of treatment and thereafter developed very rapidly, so that from five to ten days after the first signs of regression appeared the smears indicated an advanced degree of estrogen deprivation. The normal squamous epithelial cells vanished and were replaced by the small epithelial (atrophy) cells and leukocytes (figs. 5 and 6). Coincidentally with this, the glycogen content of the cells was markedly diminished.

It is interesting to note that within two or three weeks after discontinuation of testosterone the smears began to show rapid regeneration, the epithelial cells became larger, a scattering of squamous epithelial cells began to appear and increased progressively in number, glycogen appeared in increasing amounts in the cells, the leukocytes vanished, and at the end of three or four weeks after the last injection the smear resembled that of a normal adult woman (fig. 7).

Doses of Approximately 300 Mg. a Month.—With doses of 300 mg. a month the effects produced were variable. In some cases menstruation was delayed

several days and in others it occurred at the expected time. The flow was usually diminished. In some cases the premenstrual endometrial biopsy showed absence of progesterational changes. The vaginal smears in the majority of cases showed no significant changes during the period of testosterone propionate administration. In several cases, however, early regressive signs appeared during the latter part of the course of treatment and in some instances for a few days following the next menstrual period.

Doses of 200 Mg. or Less a Month.—With this dosage no demonstrable changes were noted in the endometrium or vaginal smears. The periods occurred at the expected time but in some of the patients the flow was slightly diminished. In several cases menstruation occurred from three to seven days prematurely and was associated with slight increase in bleeding.

Testosterone Propionate Administered During First Two Weeks of the Cycle.—In the cases in which testosterone propionate was given only during the first ten to fourteen days of the cycle (beginning with the first day of menstruation) in doses of from 300 to 500 mg. menstruation was delayed from one to four weeks, and this was usually associated with inhibitory effects on the endometrium and vaginal smears. Similar amounts administered during the last two weeks of the cycle caused neither delay in menstruation nor demonstrable changes in the smears in the current month.

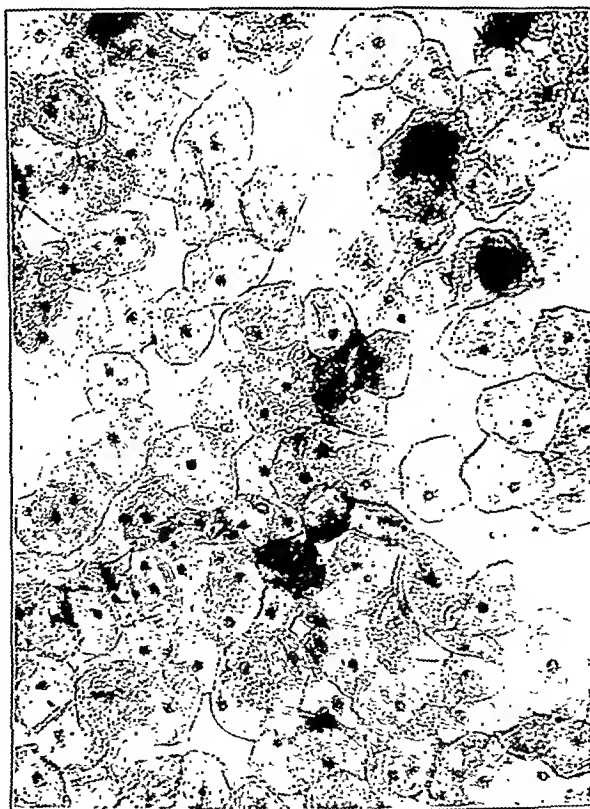


Fig. 4.—Preliminary vaginal smear showing normal estrogenic effect (large squamous epithelial cells with small nuclei).

Androgenic Effects (Virilism).—In addition to the morphologic effects on the genital tract just described, some interesting clinical effects were noted in some of the cases in which the very large doses (500 mg. or more a month) were given. These were slight facial hirsuties, hoarseness and acne. It is interesting to note

that these signs and symptoms appeared singly in some cases and in combination in others.

In view of the clinical importance of these effects, we report here the side effects noted in the larger series of 153 women who were treated with testosterone

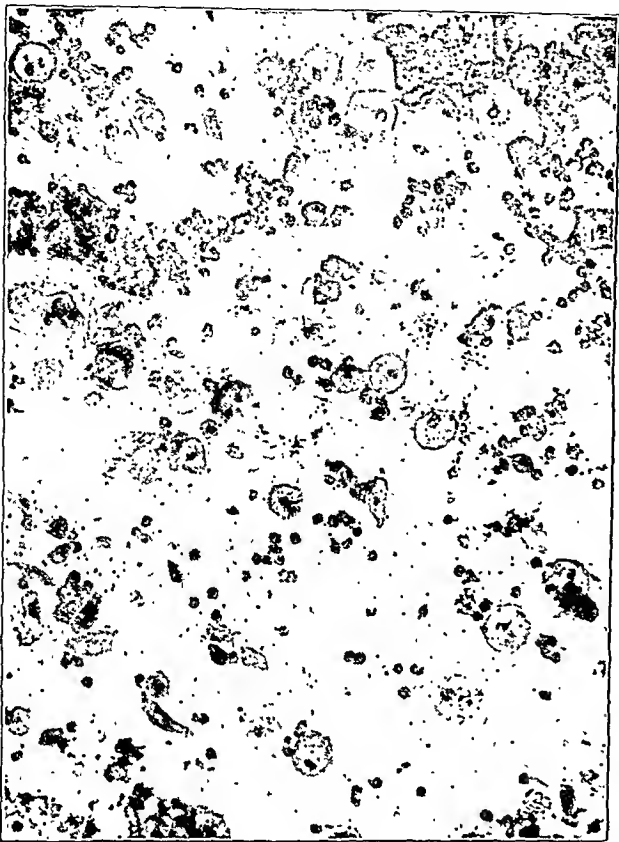


Fig. 5.—Vaginal smear following the administration of 600 mg. of testosterone propionate. The smear reveals signs of estrogen deficiency, manifested by the disappearance of large squamous epithelial cells and appearance of numerous small round epithelial cells (atrophic cells) and leukocytes.

propionate for dysmenorrhea, functional bleeding, mittelschmerz, mastalgia, premenstrual tension and menopausal syndrome. The monthly dose in these cases varied from 40 to 1,200 mg. The total dose administered to individual patients (during periods extending from one to seven months) varied from 40 to 2,150 mg. The incidence of androgenic phenomena in this series was hypertrichosis 11 per cent, voice changes 13 per cent and acne 8 per cent.

Hypertrichosis: We characterized as hypertrichosis any growth of hair on the upper lip or chin regardless of how slight in degree. In four cases there was also an increased growth of hair on the arms and legs, in two also on the lower abdomen, and in several a few hairs appeared on the areolas of the breasts.

It is significant that in all but two cases in which hirsutism developed more than 500 mg. was given. In the majority of these the individual dosage exceeded 900 mg. In only two cases of the entire series was hirsutism produced with less than 500 mg. (in one case with 315 mg. and in the other with 450 mg.). The hirsuties was very slight in degree in both these cases. Brunets, particularly those with preexisting hypertrichosis, appeared to be most susceptible. The hirsuties began to appear usually from five to six weeks after the beginning of testosterone administration. In approximately 60 per cent of these cases the hirsuties disappeared within several months after discontinuation

of treatment; the remaining cases showed varying degrees of progressive improvement. In two cases there was still slight hypertrichosis as late as fourteen months after the discontinuation of testosterone. Both these patients received extremely large doses (2,150 and 1,975 mg.).

Voice Changes: In 13 per cent of the patients some changes in their voices developed during or after the administration of testosterone. The majority of these consisted of hoarseness, which the patients ascribed to a "cold." Some patients complained of a feeling of "tightness in the throat." Two thirds of the patients were completely restored to normal. The others retained a slightly lowered pitch or husky quality which continued to improve under observation, to date. It is noteworthy that only three of the patients receiving less than 500 mg. (470, 315 and 425 mg.) had some hoarseness, and these were all restored to normal.

Acne: The acne which occurred was usually mild and consisted of scattered papules on the face and chest. In some cases the acne was induced with relatively small doses, in one instance as small as 150 mg. The acne disappeared rapidly within five to ten days after discontinuation of treatment.

In only two cases was an appreciable enlargement of the clitoris observed. The enlargement persisted but caused no symptoms.

Estrogen Deficiency Phenomena: Some of the patients receiving sufficiently large doses to produce



Fig. 6.—Vaginal smear ten days after discontinuation of treatment. The smear still shows the effect of testosterone propionate.

regressive changes in the vaginal smear complained of vaginal discomfort and/or pruritus vulvae. Examination revealed mild atrophic vaginitis. The symptoms disappeared within a few weeks after discontinuation of treatment. A few of these patients complained of flushes which developed during the period of induced

amenorrhea. These flushes disappeared, usually coincidently with the restoration of the vaginal smear to a normal status.

COMMENT

It is apparent from the observations recorded here that testosterone propionate administered in adequate doses to normally menstruating women suppresses menstruation temporarily and induces a rapidly developing atrophy of the endometrium and vagina. The question arises as to the mechanism of the testosterone action. It has been shown that androgen administered to a castrated rat prevents the postcastration changes in the hypophysis²⁶ and that the excretion of gonadotropic substance by a castrated woman can be suppressed with testosterone propionate.² It seems not illogical to assume that a similar inhibition of the gonadotropic activity of the hypophysis occurred in the cases reported here. This explanation is supported by the observation that testosterone propionate administered during the first two weeks of the cycle (in time to inhibit the secretion of gonadotropic substance by the hypophysis) will suppress or delay menstruation, whereas similar amounts administered during the latter half of the cycle (after ovulation has occurred) will have no such effect. As a result of this inhibition, the normal gonadotropic stimulation of the ovaries fails to occur, ovulation is consequently suppressed and the normal formation of estrogen and progesterone is inhibited. This is revealed in failure of the normal proliferative and progestational changes of the endometrium to appear and in the atrophy of the vaginal mucosa. Inhibition of estrogen formation in the ovary, however, does not satisfactorily explain the rapid development of the signs of estrogen deficiency (atrophy of the endometrium and vaginal mucosa), since such advanced signs of atrophy do not usually appear until many months after bilateral oophorectomy or the menopause. This suggests an actual inactivation of the available stored estrogens or of estrogens circulating in the body.

It appears that if large doses of testosterone propionate are given there develop morphologic signs and clinical symptoms indicative of an estrogen deficiency. Thereafter in some of the women signs and symptoms develop which one may regard as androgenic, viz. amenorrhea, hirsutism, hoarseness, acne and enlargement of the clitoris—a syndrome which is reminiscent of arrhenoblastoma of the ovary or tumors of the adrenal cortex. After discontinuation of the testosterone, a restoration to normal status of the menstrual rhythm and of the histologic pattern of the endometrium and vagina occurs, and the signs of virilism recede gradually.

It should be emphasized that both estrogenic deficiency and androgenic signs and symptoms were usually produced with large doses (500 mg. or more a month), whereas doses of less than 300 mg. produced no untoward effects.

A significant fact that emerges from this study is the sensitiveness of the vaginal smear as an indicator of androgenic effect. The smear will frequently reveal early regressive changes after the administration of amounts of testosterone which are insufficient to inhibit menstruation or produce masculinization phenomena. For this reason it is exceedingly important to take vaginal smears at frequent intervals while the testos-

terone is being administered. Signs indicative of estrogen deficiency in the smear should serve as a warning to discontinue treatment.

It has been shown that normal adult women excrete significant amounts of androgens (an average of 26 international units a day), whereas before puberty the androgen excretion is extremely small (from 1.8 to 2 international units per liter).²⁷ This fact, coupled with the striking inhibitory effects produced by testosterone on the endometrium and vaginal mucosa, suggests that androgens may play a definite role in the sex hormone metabolism of the female. We have previously suggested that androgens probably modify or restrain the action of the estrogens and that in the normal woman



Fig. 7.—Vaginal smear taken twenty days after discontinuation of testosterone propionate, showing restoration to normal. Menstruation occurred ten days later.

there is a balance between the estrogens and the androgens.¹⁰ The therapeutic results obtained with testosterone propionate in menometrorrhagia and dysmenorrhea suggest that in these conditions there may be some abnormality in the androgen metabolism so that the normal balance may be upset.

SUMMARY AND CONCLUSIONS

1. The effects of testosterone propionate were studied in a series of twenty-five women with normal menstrual cycles. Endometrial biopsies and vaginal smears were taken before, during and after administration of androgen.

2. Testosterone propionate in doses of 500 mg. or more a month produced (a) temporary suppression of menstruation, (b) hypoplasia or atrophy of the endometrium and (c) evidence of estrogen deficiency in the vaginal smear. Restoration to normal occurred in all cases after cessation of treatment.

26. Reese, J. D., and McQueen-Williams, M.: *Am. J. Physiol.* **101**: 239 (July) 1932. Nelson, W. O., and Gallagher, T. F.: *Anat. Rec.* **64**: 129 (Dec.) 1935. Wolfe, J. M., and Hamilton, J. B.: *Proc. Soc. Exper. Biol. & Med.* **36**: 307 (April) 1937.

27. Koch, F. C.: *Harvey Lectures 1937-1938*, Baltimore, Williams & Wilkins Company, 1938, p. 205.

3. Doses of 200 mg. or less a month did not suppress menstruation or cause any demonstrable changes in the endometrium or vaginal smears. With intermediate doses the effects produced were variable.

4. Large doses of testosterone propionate (more than 500 mg. a month) may produce the following symptoms and signs: (a) signs of estrogen deficiency, including temporary amenorrhea and senile vaginitis, and (b) androgenic effects, including hoarseness, hirsuties, acne and enlargement of the clitoris. In almost all cases these phenomena regress spontaneously after discontinuation of treatment.

5. It is suggested that the mechanism of testosterone action is threefold: (a) inhibition of the gonadotropic factors of the hypophysis resulting in failure of ovulation and suppression of the normal formation of estrogen and progesterone, (b) direct inactivation of the available estrogens in the body, and (c) the production of androgenic effects (virilism).

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ABSTRACT OF DISCUSSION

PROF. ERNST LAQUEUR, Amsterdam, Netherlands: A few historical remarks about the influence of testosterone on female organs may be of interest. Fourteen years ago estrogens were injected in the form of extracts from follicle fluids into castrated mice and tried the effect of testicular extracts on the estrous reaction. The idea was that testicular extracts might have an inhibiting effect on estrus. The experiment proved that the idea was wrong, because estrus was not inhibited. The estrogenic effect was rather enhanced by extracts of testis and estrogenic substances were found in this male organ; some years later Koch with his associates in America found a male substance in testicles. When making extracts from testicles was resumed the same thing was found and four years ago testosterone was identified. I believe that the original idea of Dr. Moore in Chicago was that sex hormones inhibit the hypophysis and that under such circumstances the gonadotropic influence of the hypophysis on the ovaries is eliminated. I did not understand the authors' reasons for inferring a direct antagonism between the sex hormones. I can show on lantern slides the results of my collaborator Dr. Mühlbock. Last year he showed that the effect of androsterone on the comb of the capon is suppressed by estradiol benzoate. It is not known whether this effect is due to some interference with the function of the pituitary. According to another series of experiments the different female substances have a different potency of inhibition on the comb. Estradiol benzoate is more effective than estrone, while estriol has no effect though chemically related to the other two. Progesterone has a similar effect, whereas pregnandiol is without effect. I mention these experiments because they show the importance of the choice of closely allied substances for certain purposes. This is essential from a general point of view, while the details of the experiment are less important.

DR. HAROLD S. CONNAMACHER, Newark, N. J.: I should like to ask the authors the method they use in obtaining the vaginal smear.

DR. UDALL J. SALMON, New York: It is an honor to have Professor Laqueur discuss this paper. We are in debt to him for his pioneer work with both the estrogens and the androgens. In answer to his question, we noted that one month after the administration of about 600 mg. of testosterone to a regularly menstruating woman the endometrium and vaginal smears were reduced to an advanced degree of atrophy. If one is to assume that the testosterone produces this effect solely by inhibiting the mechanism of estrogen formation, then one would expect to find similar degrees of atrophy a month or so after removal of both ovaries. But actually of a series of more than a hundred cases of bilaterally ovariectomized women for whom we did vaginal smears and vaginal biopsies from one to twelve months after removal of the ovaries, the

majority did not show comparable degrees of atrophy. It appears, therefore, that there must be some other factor, in addition to the estrogen deprivation, to account for the rapid appearance of atrophic changes in the genital tract when testosterone is administered. We accordingly assumed that the testosterone either inactivates whatever estrogens are stored in the body or has a direct inhibitory effect on the uterine and vaginal mucous membrane. It is becoming increasingly more evident that physicians are only beginning to understand the physiologic ramifications of the steroid sex hormones. There is reason to believe that not only the androgens but also the adrenal cortex hormones play an important role in the sex hormone physiology of the female. Thus we have recently found that desoxycorticosterone has an estrogenic effect on women. This seems to indicate that the adrenal cortex may supplement the estrogenic activity of the ovaries and may explain the hitherto puzzling observation that estrogens are excreted after bilateral ovariectomy. The chemists have made brilliant progress in isolating and synthesizing these complex compounds. It is for the biologist and clinician to determine the physiologic properties of these hormones and to define their role with regard to the many unsolved problems in endocrinology. In reply to the question concerning the technic employed for the vaginal smears: The reagent is a 12 per cent aqueous solution prepared from a saturated alcoholic solution of fuchsin. The vaginal secretion is diluted with physiologic solution of sodium chloride, spread on a glass slide, allowed to dry in air and then stained for thirty seconds with the fuchsin solution. It is then washed with tap water and examined.

Clinical Notes, Suggestions and New Instruments

TRAUMATIC RUPTURE OF THE SPLEEN AND THE STOMACH

MELVIN A. CASBERG, M.D., St. Louis

The success of automotive engineering in its achievement of high speed in transportation has brought with it numerous rather tragic aftermaths, not the least of which is the ever increasing supply of material for the field of traumatic surgery. Though the major portion of such reconstructive effort falls within the realm of fractures, one of the most intriguing parts of this surgical specialty, from the standpoint of diagnosis and treatment, is that of intra-abdominal injury. There are four organs within the abdominal cavity the pulpy structure of which makes them readily susceptible to external injury; the liver, the two kidneys and the spleen.

Splenic rupture may be caused by direct or indirect violence or may occur spontaneously. In the last type of rupture, which is rather uncommon,¹ there is usually some underlying splenic pathologic change such as is observed in the splenomegaly of malaria or a blood dyscrasia. The onset of such an accident is dramatic and without warning, but the symptoms and physical features are similar to those observed in traumatic rupture of the spleen. Open wounds or direct injuries of the spleen are in the majority of cases complicated by injuries to other adjacent viscera,² whereas subcutaneous or indirect injuries to the spleen are less frequently so complicated.³

REPORT OF CASE

The following case was felt to be of sufficient interest for publication because of the complication of an indirect rupture of the spleen by a simultaneous gastric rupture:

J. S., a boy aged 3 years, was brought to the City Hospital Aug. 12, 1939, about one hour after having been struck by a

From the Division of Public Welfare, City Hospital.

1. Haden, R. L., and Dinsmore, R. S.: Indications for Splenectomy, *S. Clin. North America* 17: 1391-1394 (Oct.) 1937.

2. Moynihan, Sir Berkeley: Abdominal Operations, Philadelphia, W. B. Saunders Company, 1926, vol. 2, pp. 549-551.

3. Lanzillo, Fausto: Unusual Mechanism of Simultaneous Traumatic Rupture of Spleen and Stomach, *Riforma med.* 54: 1022-1030 (July 2) 1938.

RUPTURE OF SPLEEN—CASBERG

1545

car. The child was riding in a toy express wagon at the time of the accident. Bystanders were unable to give exact details as to the method of injury, but from their rather scanty information, it seemed that the car wheel struck the left side of the child's abdomen and then glanced off without running over the body. According to the story of the parents, the child walked from the scene of the accident and experienced no immediate severe pains. A private physician stated that the patient had sustained only superficial bruises. About one hour after the injury the child became restless and cried considerably, holding his hand over the left upper quadrant of the abdomen. There was no history of nausea or vomiting prior to hospitalization.

The past history was of no importance except that the child had always been in the best of health. There was no history that might suggest previous attacks of malaria.

The child was fairly well nourished and well developed. He appeared to be rational and orientated but was in impending shock. He lay on the examining table on his right side with his knees drawn up and the palm of his left hand over the left upper abdominal quadrant. This posture was maintained throughout the preoperative period. His facial expression was apathetic, and at frequent intervals he whimpered with pain. The skin was moist and cold and had a rather characteristic greenish pallor. The admission temperature was 99.8 F. (rectal), the pulse rate 160, the respiratory rate 28 and the blood pressure 96 systolic, 40 diastolic.

Examination of the skeletal system revealed no evidence of fractures. The heart and lungs were normal, save for the rapid rate of the former. Over the lowest three ribs on the left side posteriorly from the midclavicular line were several superficial abrasions. There were similar abrasions over the left anterior-superior spine of the ilium and in the left lumbar region, but in none of these was the skin actually lacerated. The abdomen was splinted during respiration, and there was muscle guard over the entire left side of the abdomen. The point of maximum tenderness was in the left upper quadrant along the subcostal border. Questionable rebound tenderness was elicited over the right side opposite the umbilicus. The sign of Ballance was negative.⁴ Auscultation of the abdomen revealed a "silent" intestinal tract. The patient vomited twice during examination, and no frank blood was seen in the vomitus. The blood count on admission showed 2,640,000 red cells and 24,650 white cells. Examination of the urine revealed no red cells or albumin and only a trace of sugar. A roentgenogram taken immediately on admission (sitting plate) and prior to the attack of vomiting failed to reveal evidence of free air under either leaflet of the diaphragm.

A diagnosis of a ruptured spleen with intra-abdominal hemorrhage was made, and the child was prepared for operation. There was some delay because the parents were reluctant to sign an operative permit, but during this time parenteral fluids were administered and blood donors were typed for transfusion. Seven hours after the injury, with the patient under drop ether anesthesia, a laparotomy was performed; citrated blood was transfused during the operation. A left rectus muscle-retracting incision was made extending from the region of the xiphoid process almost down to the pubis, and when the peritoneum was opened considerable free blood was encountered. The blood, which contained several fairly large clots, was seen to be distributed throughout the operative procedure. Exploration of the left upper quadrant revealed the spleen to be ruptured completely with two entirely separated pieces, each attached at the pedicle. The two fragments were not equal in size, one being about two thirds and the other one third of the whole. The lacerated surfaces were irregular, shaggy and bleeding freely, though no arterial spurting was noted. The splenic segments were removed separately after suturing each pedicle with No. 1 chromic catgut. Further exploration revealed that the portion of the splenic bed was ecchymotic and ach which normally lies in the splenic bed was this traumatized considerably traumatized. In the center of this traumatized

area, which measured about 3 cm. in diameter, was a complete gastric perforation about 1 cm. in diameter which readily admitted the tip of a curved Kelly forceps. No gastric contents were spilled into the peritoneal cavity, and this was explained by the presence of a large blood clot over the site of perforation. A dulox suture was purse-stringed about the hole and the traumatized area was inverted.

Examination of the remaining abdominal viscera showed no further evidence of trauma other than a moderate degree of ecchymosis into the wall of the small intestine at the duodenojejunal flexure. The abdomen was closed in layers without drainage, with No. 1 chromic catgut single in a continuous suture to the fascial layers, four silkworm-gut stay sutures and clips to the skin.

The patient's postoperative course was stormy during the first forty-eight hours, owing in great part to bronchitis initiated most probably by the ether anesthesia. The highest temperature encountered was 103.8 F. (rectal) on the first day. Treatment during the first two days consisted of parenteral fluids (5 per cent dextrose in physiologic solution of sodium chloride), transfusions of citrated blood and sips of water by mouth. The postoperative blood counts on alternate days were red cells 3,980,000, white cells 7,600; red cells 3,750,000, white cells 8,900; red cells 3,900,000, white cells 9,000. The platelet count on the seventh postoperative day was 285,000. The Schilling differential count and the leukocytic morphology were normal. A soft diet was started on the third day; the skin clips were removed on the fifth day and the stay sutures on the ninth day. The abdominal wound healed by primary intention, and the child was discharged on the tenth day. When the child was examined three weeks later in the clinic the abdomen showed no incisional weakness and no areas of tenderness were present. The mother stated that the child was normal in every respect, had a healthy appetite and played in his usual boisterous manner. When last seen, four months after the date of injury, the child was in excellent health.

The pathologic examination was made by Dr. S. H. Gray. The gross specimen consisted of two pieces of spleen which together weighed 92 Gm. The specimen apparently had been forcibly torn apart. Both surfaces were irregular and craggy. The splenic capsule was smooth. On cross section the corpuscles were seen to be firm and the trabecular system and malpighian capsule were thin and smooth. The germinal nodes were large, prominent and frequent. The splenic pulp was prominent, and only in several patchy areas was there any red pulp. No areas of old or recent infarction were seen.

COMMENT

Diagnosis in small children presents a problem which is due in great part to the lack of adequate mental intercourse between examiner and examinee. This case report proves to be an exception in that the history and physical features are almost classic in their clarity. A story of abdominal injury on the right followed by pain in the right upper quadrant, impending shock, leukocytosis and anemia can be taken almost word for word from any standard surgical textbook under the heading "Traumatic Rupture of the Spleen." Other injury could not be ruled out absolutely, and hence the x-ray study of the abdomen for possible free air under the diaphragm. The explanation for the lack of free intraperitoneal air in the presence of a gastric rupture lies in two factors: first the presence of a large blood clot in the gastric bed and second the failure of such a test to be exact, as is shown by the lack of such an observation in 30 per cent of proved gastric perforations.⁵

The problem further arises in this case as to the possibility of damage to the left kidney, for there were several abrasions in the left lumbar region. The absence of red blood cells in the urine and the anterior location of the tenderness helped the differential diagnosis. Finally, the exact mechanism of injury to the stomach and spleen is a matter of interest. It would seem from the story

4. Graham, E. A.: *Surgical Diagnosis*, Philadelphia, W. B. Saunders Company, 1930, vol. 2, p. 725.

5. Petré, Gustaf: Ueber den diagnostischen Wert des Röntgenologischen Nachweises freier Gases in der Bauchhöhle bei Ulcusperforation, *Chirurg* 9: 239-266 (April 1) 1937.

as to the manner of injury, from the physical data and especially from the operative observations that the wheel of the automobile passed from the left iliac crest toward the xiphoid process and then the child must have been squeezed out, as it were, from under the tire. Thus the spleen and stomach were pinched between the wheel and the upper lumbar vertebrae.

SUMMARY

In a case of indirect traumatic rupture of the spleen there was a complicating gastric rupture. A splenectomy and gastric repair were performed with recovery of the patient.

This case presents the classic picture of a splenic rupture and emphasizes the importance of a complete and thorough examination of the entire peritoneal cavity in the face of intra-abdominal injury, for though the damage to the spleen explained all the symptoms and observations further exploration uncovered a gastric perforation.

FULMINATING CANCER OF THE PENIS

JOHN K. ORMOND, M.D., DETROIT

The following instance of carcinoma of the penis is of interest for three reasons: (1) the long history and the nature of the precancerous lesion, (2) the fulminating character of the growth, and (3) the distribution of the metastases.

REPORT OF CASE

A man aged 62, married, machinist, the father of four children, stated that he had never had any venereal disease. Thirty-five years earlier, at the age of 27, he had been circumcised, and from that time forward on the scar of the circumcision, at the lower proximal rim of the sulcus, there was a dry crust continually forming, rubbing off and reforming.

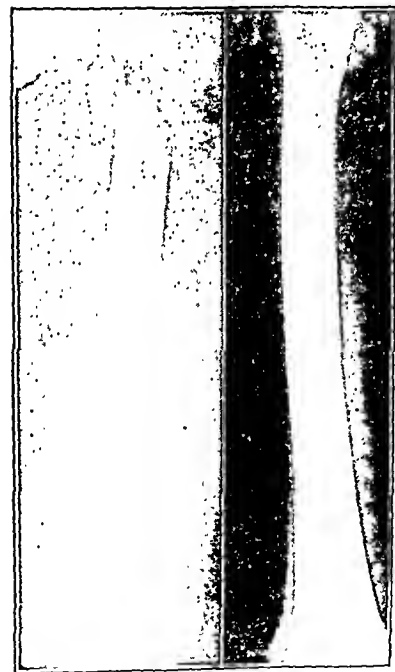


Fig. 1.—Appearance of the femurs.

Three weeks before his admission to the hospital this condition suddenly changed and a "sore" developed at the site of the crust and began rapidly eating away the end of the penis. At the same time a swelling appeared in the right groin, and he began having pain in the right hip extending down the anterior aspect of the thigh. About a week before admission the swelling in the groin ruptured and discharged serous and purulent fluid.

On admission his general physical examination showed nothing unusual except an old amputation of part of the left foot. The blood Wassermann reaction was negative. Involving most of the glans and a small portion of the shaft of the penis was a fungating ulceration, and in the right inguinal region was a yellowish mass the size of a golf ball topped by an irregular ulcer from which exuded a serous liquid. Biopsy showed squamous cell carcinoma, type I, of both penile tumor and inguinal mass.

On the fifth day after admission the distal half of the penis was amputated and the inguinal glands on both sides were

excised. On the right the glands were found adherent to the femoral vein and were carefully dissected away, but a chain of large glands was found extending up under Poupart's ligament along the vessels. The inguinal wounds and penile wound healed, and even before healing was complete the patient was given high voltage roentgen treatment.



Fig. 2.—Pelvis and upper part of right femur.

Thirty-two days after operation, while turning over in bed, he had severe pain in the upper part of the right thigh, and x-ray examination showed a destructive lesion in the femur with a pathologic fracture. A double hip spica was applied, which made him comfortable. He was sent home in the cast a month later and died at his home six weeks afterward.

A roentgenogram taken by his physician, Dr. L. E. Hamlin, of Norway, Mich., showed metastasis to the bones of the thorax. There was no local recurrence, either on the penis or in the inguinal regions, and it was striking how much the penis looked like a normal penis with the glans covered by a prepuce.

COMMENT

Stout, in his book on "Human Cancer," says: "On the whole the majority of the squamous cell epitheliomas of the penis are relatively benign, slow in their biological evolution.

In spite of the fact that the patients often are not seen until the growth has been in existence for from eight months to a year, the majority of them have been successfully eradicated or destroyed. Metastases almost always go first to the inguinal glands. In rare cases, metastases have been reported in the liver, lungs, heart and stomach. Shivers reports a metastasis in the spine in one of his cases and Charannas and Simcon one in the fifth dorsal vertebra."

In this case, the time from discovery of the tumor until death was only a little over four months, but the appearance of the tumor was preceded by a precancerous lesion of about thirty-five years' duration. A recurring crust on a circumcision scar is evidently nothing to be treated lightly.



Fig. 3.—The chest shortly before death. Note the defect in the fifth rib.

BLACKWATER FEVER (HEMOGLOBINURIA) CAUSED BY SPIDER BITE

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It is a common impression, particularly in this section of the country, that blackwater fever (massive hemoglobinuria) is caused only by malarial infections. It is known, however, that occasionally blackwater fever is caused by toxemia from drugs or by severe infections. Lesser grades of hemoglobinuria are common, especially since the use of the various sulfanilamide preparations has become universal. The term hemoglobinuria is used to designate the excretion of the blood pigment in the urine with the absence of red blood cells or with an insufficient number to account for the alteration of the urine. Blackwater fever is the term applied when the amount of this pigment is massive; this large quantity is sufficient to render the urine very dark or black in appearance.

Other causes of hemoglobinuria are organic and inorganic poisons such as quinine, phenol, glycerin and blood from incompatible donors, and severe toxemias due to burns and infections. Some cases of hemoglobinuria have been reported as being due to cold, and there are reports of cases in which the hemoglobinuria is paroxysmal in its occurrence.

We are reporting a case of blackwater fever caused by a spider bite. In a review of the recent literature we have been unable to find a similar case. Another interesting fact is that it is commonly thought that the "black widow" spider, *Latrodectus mactans*, is the only one which will cause a profound illness. In this instance the disease was caused by an insect not of the *Latrodectus mactans* variety but probably of the *Amaurobius ferox* species.

REPORT OF CASE

M. D. D., a girl aged 3 years whose family live in a rural community, was seen by one of us (J. J. M.) Aug. 12, 1939. August 11 the child was bitten on the left flank by a large brown spider. The mother, who removed the spider from the child's clothing, was certain that it was not of the "black widow" variety. At the time of the examination the child had a temperature of 102 F. and was vomiting frequently. There was a large, swollen, indurated area on the left side, just above the buttock, where the spider had punctured the skin. The child did not appear extremely ill, so that no medicine was prescribed, but general instructions were given to the mother. The following morning (August 13) the child passed black urine. On the receipt of this information she was immediately transferred to the hospital, arriving about 5 p. m. Her parents brought a specimen of urine. It was perfectly black, as if it were ink or as if there were charcoal in it. A specimen of the urine obtained on admission was examined spectroscopically by Dr. William B. Wendel, of the Department of Chemistry of the University of Tennessee. The pigment was identified as methemoglobin; it was present in concentrated amounts. It was acid in reaction and contained a large quantity of albumin, but there were no pus cells, red blood cells or other sediment in it. The specific gravity was 1.012.

The patient's temperature on admission was 102.2 F., the pulse rate was 130, and the respiratory rate was 22. On physical examination there was observed a large indurated area in the left flank about 8 cm. in diameter. In the center was a puncture wound of the skin, evidently where the spider had bitten her. Mild sedation and intravenous dextrose were administered at once, and blood was obtained for typing.

On laboratory examination the hemoglobin level was 59 per cent and the red blood cell count was 2,940,000. The white blood cell count was 17,800 with 91 per cent polymorphonuclears, 8 small lymphocytes and 1 large mononuclear. During the night the child seemed to be resting quietly and improving. The following morning she passed a quantity of urine the color of which had greatly improved. The vomiting had ceased, and she was able to take some fluids. About 3 o'clock in the afternoon, approximately seventy-two hours after the bite, the child suddenly went into shock and collapsed. Her temperature was elevated to 104 F., the pulse rate was 160 and the volume very poor, and the respiratory rate was 36. She was covered by a profuse perspiration and became cyanotic.

Within a very short time she was given 300 cc. of citrated blood, which was followed by 300 cc. of 10 per cent dextrose in distilled water. She responded quickly to the transfusion of blood and from that time on rapidly improved. The following morning her temperature was normal and it remained so for the duration of her hospital confinement.

The morning after the transfusion the hemoglobin estimation was 61 per cent and the red blood cell count was 3,410,000. The white blood cell count was 13,400 with 78 per cent polymorphonuclears, 17 per cent large lymphocytes, 1 large mononuclear and 4 eosinophils.

The last specimen of urine was clear in color, alkaline in reaction and free from sediment, pus or blood cells. The specific gravity was 1.002. The patient was kept under close observation the next week, during which time she showed no further effects from her illness. The urinary output was good, the temperature remained normal, and the swelling and tenderness at the site of the inoculation completely subsided. At last reports she had resumed her normal activities.

20 South Dunlap Street.

FATAL LEUKOPENIA FOLLOWING INTERNAL ADMINISTRATION OF CAUSALIN

OSCAR BERGHAUSEN, M.D., CINCINNATI

When aminopyrine is prescribed the physician should be on the alert for possible toxic symptoms, chiefly gastric in origin, for the patient may have an idiosyncrasy to the drug and leukopenia may be likely to develop if the use of the drug is continued. Unfortunately the physician sometimes does not recognize the aminopyrine content of a drug bearing a trade name, even though the label may bear the chemical nomenclature. Such a drug is on the market under the name of causalin,¹ which has been recommended for patients suffering from arthritis. Bernhard² tested its effects in 286 cases of arthritis but wisely recommended that its use be discontinued if gastric symptoms appear early in the treatment. He was able to administer a maximum dose of 60 grains (4 Gm.) daily with no signs of toxicity.

The following case is reported because death apparently was due to the continued use of a compound which contains approximately 1.82 grains (0.12 Gm.) of aminopyrine according to Bernhard.² Presumably he means the 7½ grain tablet or capsule of causalin. The question arises whether it would not be wise for all products containing aminopyrine to have the content of this drug written plainly on the label, for physicians are not familiar with the complex chemical nomenclature.

REPORT OF CASE

A married woman aged 52 was admitted to the Bethesda Hospital, in the service of Drs. G. E. Garwin and Spencer Hagen, Aug. 14, 1939, acutely ill with nausea and vomiting, no diarrhea and severe chills and fever. About a month before the onset of the present condition the patient's first physician had prescribed capsules marketed under the name of causalin. She had taken three capsules a day over a period of a month. She gave a history of arthritis which had developed twenty-five years previously, following the birth of a child and leading to permanent deformities of the extremities. There was nothing of further importance in the family history or personal history.

On admission to the hospital the patient was extremely toxic; the temperature was 102 F., the pulse rate 80 but irregular, and the respiratory rate 16. Three hours later the rectal temperature had reached 105.4 F., the pulse rate 80 and the respiratory rate 20. She was talking irrationally. Examination revealed ulcerations on the mucosa of the hard palate, with considerable edema and swelling of the pharynx making a laryngeal examination impossible. The ulcers were about 1 cm. in diameter with irregular margins and a white sloughing base. Acute gingivitis was present. Symptomatic medication included 1 liter of 10 per cent dextrose solution given intravenously, but to no avail.

¹ Causalin, a trade name of the Drug Company, New York, as containing aminodimethylpyrazol-sulfonate ethyl salicylate carbonate.
² Bernhard, Robert: A Three Year Study of Arthritis, *M. World* 57: 448-451 (July) 1939.

When seen in consultation thirty hours after admission to the hospital the patient was in a dying condition, with labored breathing and faint irregular pulse. The multiple ulcerations of the mucosa of the hard and soft palate were associated with marked edema. The tongue was furred and the breath foul. The thyroid and cervical glands were not enlarged. Edema of the lungs had developed with congestion at the base. Death occurred three hours later. Dr. Spencer Hagen reported that a vaginal examination revealed an enlarged uterus, with no demonstrable evidence of malignant growth. There was one ulcerative patch on the vulva. The spleen was not enlarged, and there was no jaundice or petechiae.

Of particular interest was the marked degree of leukopenia. On admission at 3 p. m. the red cells numbered 3,710,000 and the white cells 1,150 per cubic millimeter and the hemoglobin content was 64 per cent. The stained smear showed marked anisocytosis and poikilocytosis, and of 25 cells counted 23 were lymphocytes and 2 lymphoblasts. No polymorphonuclear or granular cells could be found. By 10 p. m. the white blood cells numbered 900 per cubic millimeter, by 11 a. m. the following morning 600 and at 3 p. m. 650. The patient died at 9 p. m. the day following admission; permission for autopsy was unfortunately refused.

The reddish bone marrow removed by sternal puncture showed about 4,500 white cells, all lymphocytes, an occasional lymphoblast, normally sized red cells and no normoblasts.

19 West Seventh Street.

AN UNFAMILIAR CAUSE OF LOSS OF WEIGHT

WILLIAM ALLEN PUSEY, M.D., CHICAGO

Early in 1937 I became conscious of the fact that I had almost lost my taste for food. The condition seemed to date from about the first of the year; I had been enjoying the flesh-pots over the holidays, and I assumed it was the result of that. But it continued and finally I concluded it was a permanent deterioration in my taste, for which, however, I had nothing to account. It was not a true loss of appetite because I would get hungry, but a loss of taste for food. It was so marked that I found it difficult to eat. In four months, by May, I had lost 20 pounds, from 185 to 165. A sudden unaccountable loss of 20 pounds in weight in an old man is a matter for concern, and I sought expert advice. I was thoroughly studied and nothing of importance was found, and particularly cancer in the abdomen was excluded.

Some time after that it gradually dawned on me that the deterioration in taste was the result of a dental plate which I had begun to wear just before the trouble developed. I had for some time worn a lower plate that carried five molar teeth, which never caused any disturbance of taste. The upper plate (the new one) proved to be the one that caused the trouble. It also carried five molars, three on one side and two on the other, connected by the usual vulcanite plate, which covered a good part of the hard palate.

The disturbance of taste could be directly associated with this upper plate. When it was left out the taste was normal; when put in, the taste was greatly impaired. I repeatedly, over weeks, controlled this fact. I could be eating a piece of beef-steak which had no more flavor than a ball of cotton, take the upper plate out, and the flavor would instantly become normal. This was so definite that I could prove it with a single mouthful. I could be eating a mouthful of steak which had no flavor, take out this upper plate, and the same mouthful of steak had its usual appetizing flavor. I made the most of my experiments with steak because with its delicate savor it was one of the best foods with which to experiment. In general, things of delicate savor showed the contrast most distinctly. Highly seasoned foods such as sausage or salads, and sweet foods, in both of which the taste was strong enough to overcome my defect, showed much less effect. Certain foods of odd flavor, such as kippered herring and sardines, became distasteful. If I took out my plate, even the same mouthful of either of them that had previously been distasteful regained its relish.

Thinking that the vulcanite might be a factor in the disturbance, my dentist made me a new plate of "vitalium"—a

stainless metal—with the part connecting the teeth on the two sides somewhat narrower. But this made no appreciable difference. Finally he made me a cast upper plate of vitalium with a palatal bar one fourth inch wide. With this bar leaving most of the hard palate uncovered, the condition has been greatly improved. It has not been entirely relieved; food has still partly lost its relish, but not sufficiently to interfere greatly with eating, and I have regained my weight.

I think it is a common fact, not commonly recognized, that there is some diminution in taste caused by dentures, but that this should be so pronounced as to produce a loss of flesh that would suggest some serious disturbance of health is, I believe, quite unfamiliar. On this point I have consulted a considerable number of capable physicians of large experience—internists, surgeons and neurologists—to all of whom the fact was unknown. My dentist told me that he had not seen so distinct a case.

My original plate was made of a vulcanite composition. My subsequent plates were all made of vitalium. No facts came out while the case was being studied that suggested that the composition of the denture had anything to do with the case. It seemed to be purely a matter of the amount of the mouth that the denture covered.

It is easy to make a plausible surmise on the reason for the phenomenon, but I do not propose to consider that interesting subject in this communication. My sole purpose in recording this personal experience is to point out that a loss of weight sufficient to cause concern and obscure enough not to be discovered during months of search may be produced by a dental plate purely through the damage to taste which it produces and the subsequent loss of appetite.

7 West Madison Street.

Special Article

THE PHARMACOPEIA AND THE PHYSICIAN

THE MEDICINAL TREATMENT OF HYPERTENSION

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NEW YORK

This is one of the second series of articles written by eminent authorities for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—ED.

Thirty years ago hypertension was regarded as a compensatory phenomenon necessary for the maintenance of the circulatory functions at a normal pitch. Consequently no active interference with high blood pressure was seriously attempted. The realization of the importance of an elevated arterial pressure as a frequent, if not the most common, cause of premature death in persons of middle age has been a great stimulus to intensive studies of this subject. It is now known that a lowering of the blood pressure in instances of hypertensive states is compatible with unimpaired circulation and normal vitality. The means of treatment are three: medicinal, hygienic and surgical. Only the therapy with drugs is under consideration in this article.

THE VALUE OF MEDICINAL THERAPY

There is a widespread impression that the medicinal treatment of hypertension is absolutely valueless and that the patient with an elevated blood pressure should

be set adrift or, more recently, resort to surgery. It is extremely interesting to note that Ayman¹ in 1930, evaluating the therapeutic results in essential hypertension, arrived at conclusions that closely resemble present reports on the effects of operative procedures. Ayman writes:

The successful treatment of essential hypertension by the use of many different drugs and methods of treatment has been reported at least two hundred times in the last decade. . . . In practically every article complete or partial symptomatic relief is reported. . . . In the majority of papers a moderate reduction in blood pressure is reported. Occasionally there is a marked reduction. . . . Marked symptomatic relief sometimes occurs without any reduction in blood pressure. Complete failure is seldom reported.

Ayman found that the symptoms of essential hypertension were definitely improved in 82 per cent of the cases by the serious and enthusiastic administration of diluted hydrochloric acid. All this means that suggestion and psychotherapy play an important part in the treatment of hypertension, though it does not gainsay that some medicaments may have an intrinsic merit of their own.

DRUGS THAT CAN LOWER BLOOD PRESSURE

The fact that blood pressure in some cases of hypertension can be reduced through vasodilatation or by depressing the central nervous system is well shown by the observations of Cady, Horton and Adson,² who used the following drugs to determine the response of hypertension and the suitability of the case for operation:

Sodium Nitrite.—Six doses of one-half grain (0.032 Gm.) each, given at half hour intervals, produces an effect in fifteen minutes, and its action is complete in from one to two hours. The nitrites lessen the tone of arterial muscle.

Amyl Nitrite.—This drug is given by inhalation; the effect manifests itself in fifteen seconds and lasts no longer than seven minutes.

Pentothal Sodium.—This is an anesthetic for intravenous use, in from 15 to 20 cc. of a 5 per cent aqueous solution, and is a progressive cerebral depressant.

Sodium Amytal.—Three grains (0.2 Gm.) administered by mouth and the dose repeated in from six to twelve hours acts as a depressant of the central nervous system; or 3 grains may be administered orally for three successive hourly periods.³

These drugs, in the doses indicated, are used as diagnostic measures for the determination of the fitness of a patient with hypertension for operation. The report of Cady, Horton and Adson demonstrates that vasodilators and sedatives can reduce blood pressure; however, the clinical application of such drugs for the prolonged control of hypertension has not been successful as a rule. This may be due to the fact either that these medications are not capable of accomplishing such a result or that physicians have not acquired the art of effective administration.

AIMS AND METHODS OF ADMINISTERING DRUGS FOR THE TREATMENT OF HYPERTENSION

The generally accepted explanation for an elevation of the blood pressure is an increase in the resistance to the arterial flow caused by a constriction of the arterioles

at the distal part of the circulation. Whether this peripheral vasoconstriction is primary and is the reason for the hypertension, as is ordinarily assumed, or the peripheral vasoconstriction is a secondary, compensatory effect to hypertension, resulting from disturbed activity of the heart and musculature of the larger arteries, as a few of us believe, will make an enormous difference in the reasoning that governs the application of the so-called depressor drugs. At the present time the physician is decidedly handicapped because the functional pathology of hypertension is neither satisfactorily nor completely explained by any theory, and the conceptions, such as they are, can serve as working hypotheses but nothing more than that.

All drugs that depress blood pressure might in the strict sense of the term be classed as vasodilators, since they bring about dilatation of the arterioles. However, some medicaments relax the arterioles directly, and these may be regarded as the true vasodilators, while others cause vasodilatation by depressing the central nervous system, and finally there is a group of medicines that have been used empirically, which for want of a better name might be thought of as empiric remedies. Thus three groups of depressor drugs may be considered: (1) vasodilators, (2) sedatives, (3) empiric remedies.

The main object of the treatment of hypertensive states is to lower the blood pressure and maintain it at a level which will not result in the secondary changes that are often the cause of death when the blood pressure is persistently elevated. These complications must be accorded prophylactic as well as symptomatic therapy. They are mentioned here because they are part of the subject under consideration, though they have been or will be more thoroughly considered in other parts of this series of articles.

Cardiac dilatation, cardiac insufficiency, myocardial degeneration and coronary thrombosis are the heart conditions that are prone to occur. They should receive the same management whether hypertension exists or not, except that it is worth noting that cardiac dilatation in cases of hypertension is highly amenable to digitalis, since the heart muscle is often in excellent shape and responds exceedingly well.

"Cerebral accidents" may possibly be prevented by frequently repeated, moderate (from 200 to 300 cc.) venesections, which serve to keep the hemoglobin percentage and red blood cell count well within normal limits in patients with hypertension who are inclined to plethora.

Control of overweight should be insisted on to prevent cardiac insufficiency even if the lowering of the blood pressure by such means is not universally acknowledged.

The proper cathartics should be prescribed, so that gastrointestinal distention and straining at stool will be avoided.

Mild and prolonged exercise, without producing shortness of breath, will provide mental relaxation, maintain good physical health and should not result in cardiac dilatation when properly supervised.

A productive, sedentary routine occupation as a rule is more desirable for control of the central nervous system than permanent retirement, provided hypertensive encephalopathy does not exist and warp the acts and judgment of the patient.

The confidence of the hypertensive patient must be gained in full measure and he must learn to place full

1. Ayman, David: An Evaluation of Therapeutic Results in Essential Hypertension, J. A. M. A. 95:246 (July 26) 1930.

2. Cady, J. B.; Horton, B. L., and Adson, A. W.: Drop in Blood Pressure Produced by Sodium Amytal, Sodium Nitrite, Amyl Nitrite and Pentothal Sodium: A Comparative Study, Proc. Staff Meet., Mayo Clin. 11:825 (Dec. 23) 1936.

3. Allen, E. V., and Adson, A. W.: Physiologic Effects of Extensive Sympathectomy for Essential Hypertension: Further Observations, Ann. Int. Med. 11:2151 (June) 1938.

responsibility on the physician; medicaments, as Ayman says, must be seriously and enthusiastically administered and should be varied frequently. Sometimes hypodermics are more useful than capsules. In part at least, this is confessedly psychotherapy for it has been learned that mental relaxation is of the greatest importance in lowering blood pressure.

SEDATION AND HYPNOSIS

While the other objectives of treatment of hypertension which have been mentioned are of equal importance to the nervous control of the patient, they should be regarded as an aid to the accomplishment of complete relaxation and satisfactory sleep. Tenseness during the active hours can often be avoided by sufficient rest, relief from excessive responsibilities, adjustment of the patient's personality and that of his family and friends, and some indulgence in pleasure. If these matters cannot be regulated so that a desirable effect on the blood pressure results, sedatives and hypnotics are in order. It is one of the basic principles of the treatment of hypertension that adequate rest should be obtained. Rest in the prone position for a half to one hour will usually be followed by a considerable drop in blood pressure, and such lowering of the arterial tension will often be maintained for some time subsequently. The

Elixirs of Barbitol and Barbitol Compounds

	One Fluidrachm Contains	Hypnotic Dose
Elixir of phenobarbital, N. F.	0.015 Gm. ($\frac{1}{4}$ grain)	0.1 Gm. ($\frac{1}{2}$ grains)
Elixir alurate.....	0.03 Gm. ($\frac{1}{2}$ grain)	0.065 Gm. (1 grain)
Elixir amytal.....	0.015 Gm. ($\frac{1}{4}$ grain)	0.1 Gm. ($\frac{1}{2}$ grains)
Elixir Dial.....	0.05 Gm. ($\frac{3}{4}$ grain)	0.1 Gm. ($\frac{1}{2}$ grains)
Elixir barbitol, N. F.....	0.12 Gm. (2 grains)	0.3 Gm. (5 grains)
Evipal—oxidized in the body.....		0.24 Gm. (4 grains)
Seconal—oxidized in the body.....		0.1 Gm. ($\frac{1}{2}$ grains)

heart and the arteries are relieved from the strain of the hypertension during this interval. Serviceable directions are:

1. Two hours' rest after lunch, flat in bed or on a couch, without interruption by friends or by the telephone.
2. Eight hours in bed at night.
3. The remainder of the day indulgence in usual activities and exercise, but avoidance of any exertion that will cause shortness of breath.

If adequate rest is not obtained, sedatives and hypnotics are indicated.

Previous to the intensive development of the barbitol compounds, that is up to about 1930, the bromides and chloral were used extensively, and they are still employed by many.

Bromides: Ammonium, Potassium and Sodium Bromide.—Sedative dose: 0.3 to 1 Gm. (5 to 15 grains) repeated every four hours. Hypnotic dose: 2 Gm. (30 grains). The bromides may be used singly or in combination; they are hygroscopic and should not be prescribed in powder form or capsules; there are a number of ready made tablets that are acceptable; the effervescent preparations are not advisable in cases of hypertension, as they distend the stomach and tend to embarrass the heart; the bromides should be taken in solution and well diluted with water.

Chloral Hydrate.—Sedative dose: 0.2 to 0.7 Gm. (3 to 10 grains) repeated every four hours. Hypnotic dose: 0.7 to 2 Gm. (10 to 30 grains). The drug deteriorates on standing and hence cannot be dispensed

in powders, capsules or tablets; it has an acrid taste which has never been successfully disguised; it is customarily prescribed in solution with elixir of lactopeptin and taken well diluted with water or orange juice. When necessary, it can be effectively administered in starch paste by rectum. The individual susceptibility to chloral varies enormously. I have seen one patient—a 200 pound (90 Kg.) man, broad shouldered and well over 6 feet (183 cm.) tall—who had trouble keeping awake during the day with a 5 grain (0.33 Gm.) dose, while a small woman scarcely obtained a night's sleep after taking 30 grains (2 Gm.). At times chloral produces restlessness and may even result in a condition that is little short of delirium; it occasionally causes eczema.⁴ I have never seen any serious toxic effects from chloral hydrate and some of the older physicians at Bellevue Hospital, where the drug used to be administered liberally and frequently, tell me that they have witnessed no harm from it, though Grabfield⁵ says "There is no doubt that in toxic doses it kills by its effect on the heart, but the fear of this side action has been engendered by the large dosage that has always been recommended up to the last five years."

Barbital and Barbitol Compounds.—Many of these have been successfully evolved during the last decade, so that at the moment there are more of them available than can be utilized. They are as a rule given as tablets or capsules; the sodium compounds are soluble but many of them deteriorate in solution and it is probably the best plan to resort to the prepared elixirs such as those in the National Formulary, in the comparatively rare instances when liquid medication is indicated.

The available elixirs of barbitol and barbitol compounds are listed in the accompanying table.

In the treatment of hypertensive patients the main objective is to avoid nerve tension and strain during the day and make certain of satisfactory sleep at night; such conditions may exist naturally; if they do not, they must be provided for by medication. The barbiturates are at present believed the best means to accomplish this. In order to prevent a cumulative effect they may at times be alternated with the bromides or chloral.

Barbital and barbitol compounds vary in potency; hence the dose of each is different from the others. They are administered with the object of producing sedation, hypnosis or anesthesia. In the treatment of hypertension, sedation during the day and hypnosis at night are ordinarily the main objectives, so that the dosage of the barbiturates will differ during the day and at night. The susceptibility of patients varies a great deal, so that the dose has to be adjusted to the individual response. Some of the barbiturates act rapidly and for a comparatively brief period, while others have a somewhat delayed effect and carry through much longer. Many of the barbiturates are oxidized in the body, while others are eliminated in the urine; it is obvious that the latter may result in a cumulative effect and should be given intermittently, while this precaution, theoretically at least, is unnecessary for the drugs that are destroyed by the body tissues. Although all the barbiturates depress the central nervous system, there are some that affect the motor system more than others and hence are especially useful in controlling the tendency to convulsive seizures or actual convulsions.

⁴ Daer, R. L., and Sulzberger, M. B.: Eczematous Dermatitis Due to Chloral Hydrate, *J. Allergy* 9: 519 (July) 1938.
⁵ Grabfield, G. P.: The Use of Hypnotics, *J. A. M. A.* 107: 1331 (Oct. 24) 1936.

THERAPY OF HYPERTENSION—MOSENTHAL

1551

Many barbitol compounds are offered that have been developed at the expense of an enormous amount of time and effort. It is a great pity that plain, carefully gathered, comparative data are not available for these drugs; it would aid the practitioner a great deal in their intelligent administration. The following list has been prepared; it is necessarily only a partial one.

BARBITAL AND ITS COMPOUNDS FOR SEDATION AND HYPNOSIS

For sedation the dose is from one sixth to one fourth the hypnotic dose and is given at intervals during the day; phenobarbital, a long acting barbiturate, has been the most used of these drugs for sedation.

For hypnosis the short acting barbiturates should be employed to combat delayed or intermittent sleep; the long acting barbiturates for complete, constant wakefulness; at times a combination of a short and a long acting barbiturate is effective.

The response to barbiturates is variable, and sedative and hypnotic doses have to be determined by trial and error in each individual.

Some of these drugs are cumulative, as they are not destroyed in the body, and hence they should be used intermittently.

Although all the barbiturates depress the central nervous system, there are some that affect the motor system more than others and hence are especially useful in the handling of the tendency to convulsive seizures or actual convulsions (phenobarbital and amytal and their sodium salts in the subsequent list).

The drugs to be mentioned are supposed to be given in capsule or tablet form. When it is desired to use fluid medication one should resort to the prepared elixirs, as most of the barbiturates that are soluble deteriorate in solution.

In each group the drugs are arranged according to duration of effect; the shortest acting ones are put first.

SOME OF THE BARBITAL PREPARATIONS AND THEIR ACTION

Action rapid, of comparatively short duration (from eight to twelve hours):

Pentobarbital sodium (N. N. R.), oxidized in the body. Hypnotic dose 0.1 Gm. (1½ grains).
Ortal sodium (N. N. R.), oxidized in the body. Hypnotic dose 0.3 Gm. (5 grains).

Action medium duration (twenty hours more or less):

Amytal (N. N. R.), oxidized in the body. Hypnotic dose 0.1 Gm. (1½ grains).
Amytal sodium (N. N. R.), oxidized in the body. Hypnotic dose 0.2 Gm. (3 grains).
Phanodorn (N. N. R.), mostly oxidized in the body, only small amounts appearing in the urine. Hypnotic dose (3 grains).
Neonal (N. N. R.), oxidized in the body, only 0.1 Gm. (1½ grains).
Alurate (N. N. R.), over 80 per cent oxidized in the body, the remainder eliminated in the urine in less than twenty-four hours. Hypnotic dose 0.065 Gm. (1 grain).

Long acting (more than twenty hours):

Barbital (U. S. P.), excreted in the urine, partly oxidized in the body. Hypnotic dose 0.3 Gm. (5 grains).
Soluble barbital (barbital sodium) U. S. P., excreted in the urine, partly oxidized in the body. Hypnotic dose 0.3 Gm. (5 grains).
Iprat calcium (N. N. R.): "It is claimed that it is excreted rapidly, but some action commonly persists for twenty-four

hours" (N. N. R., 1939, p. 115). Hypnotic dose 0.12 Gm. (2 grains).

Phenobarbital (U. S. P.), excreted in the urine, partly oxidized in the body but to a greater extent than barbital. Hypnotic dose 0.1 Gm. (1½ grains).

Soluble phenobarbital (phenobarbital sodium) U. S. P., excreted in the urine, partly oxidized in the body but to a greater extent than barbital. Hypnotic dose 0.1 Gm. (1½ grains).

VASODILATORS

Vasodilators should be the ideal means of controlling hypertensive disease if it is true, as generally accepted, that the cause of an elevated blood pressure resides in a primary peripheral constriction of the arterioles. The fact that these preparations either are inert in small doses or produce disagreeable sensations and even vasomotor collapse when administered in therapeutically effective amounts would point away from spasm of the arteriolar musculature as the process responsible for arterial hypertension. Certain of the vasodilators (glyceryl trinitrate under the tongue, amyl nitrite by inhalation) are invaluable in the treatment of angina pectoris because they result in prompt dilatation of the coronary vessels. When the dosage is sufficient to bring about a general reduction of arterial and arteriolar tone and a lowering of the blood pressure, vasomotor collapse often follows. Recently Lueth and Hanks⁶ have demonstrated this for glyceryl trinitrate; they accentuate the fact that the resulting vasomotor collapse depends as much on the susceptibility of the patient as on the size of the dose. The so-called vasodilators that are in common use and their dosage are as follows:

Amyl Nitrite.—This is administered by inhalation; it has a vasodilator effect in from ten to fifteen seconds and its action is terminated within seven minutes. Average dose: 0.2 cc. (3 minims) dispensed in glass pearls, which are crushed beneath the nostrils and inhaled.

Glyceryl Trinitrate (nitroglycerin).—Vasodilator action starts within a minute and lasts about half an hour; this is the effect when the drug is swallowed; when it is placed under the tongue the results are more rapid and fleeting.

Spirit of Glyceryl Trinitrate (spirit of nitroglycerin) U. S. P.—The average dose is 0.06 cc. (1 minim).

Tablets of Glyceryl Trinitrate (tablets of nitroglycerin) U. S. P.—The average dose is 0.0006 Gm. (¼₁₀₀₀ grain).

Sodium Nitrite (U. S. P.).—This is a white powder that deliquesces in the air and hence is dispensed in solution. It produces a vasodilator effect in fifteen minutes which is complete in from one to two hours. Average dose: 0.06 Gm. (1 grain).

Erythryl Tetranitrate (erythrol tetranitrate).—The vasodilator action begins in fifteen minutes and persists for three or four hours. Pure erythryl tetranitrate is a crystalline mass which explodes on percussion; hence it is marketed chiefly in the form of tablets.

Diluted Erythryl Tetranitrate (diluted erythrol tetranitrate) U. S. P.—This preparation is about 50 per cent erythryl tetranitrate and 50 per cent lactose. Average dose from 0.03 to 0.06 Gm. (one-half to 1 grain).

Bismuth Subnitrate.—Stieglitz⁷ advanced the ingenious idea that in the intestinal tract through bacterial action nitrates are slowly liberated from bismuth subnitrate and that the blood pressure would be lowered thereby. The bismuth subnitrate was administered in 10 grain (0.65 Gm.) capsules three times a day. Stieglitz obtained excellent results with this therapy while others have been unable to duplicate them. Stieglitz

6. Lueth, H. C., and Hanks, T. G.: Unusual Reaction of Patients with Hypertension to Glyceryl Trinitrate, Arch. Int. Med. 62: 97 (July) 1938.
7. New and Nonofficial Remedies, Chicago, American Medical Association, 1939, p. 337.
8. Stieglitz, E. J.: Arterial Hypertension, New York, Paul B. Hoeber, Inc., 1930.

advocated the use of the bismuth subnitrate over a period of many weeks, and it may be that lack of sufficiently long administration accounts for the failure to obtain the same effects.

EMPIRIC REMEDIES

Empiric remedies, in a sense, are vasodilators if they lower blood pressure; on the other hand, their mode of action is largely unknown, and it is doubtful whether any of them act specifically in relaxing the musculature of the arterioles. Consequently they cannot be regarded as true direct vasodilators. Thus far no drug or preparation merits the designation specific remedy for hypertension, though many of them are spoken of in that way by their sponsors.

Thiocyanates.—Sodium or potassium thiocyanate 0.2 Gm. (3 grains) to 0.3 Gm. (5 grains) in solution three times a day has been widely used in the treatment of hypertension. This drug is also available in the National Formulary as an elixir containing 0.16 Gm. ($2\frac{1}{2}$ grains) per teaspoonful.

A recent and careful study⁹ offers substantial evidence that thiocyanates may lower blood pressure appreciably in cases of hypertension and relieve the symptoms.

Toxic effects from thiocyanates have been reported frequently; extensive toxic dermatoses have been described. Goldring and Chasis¹⁰ reported two deaths resulting from poisoning during thiocyanate therapy. (Earliest symptoms: muscular weakness and nausea followed by vomiting, mental confusion, delirium, convulsions, coma, death.)

Barker¹¹ found that "the reduction of blood pressure and the relief of symptoms obtained . . . corresponded to the level of cyanates in the blood. The optimum therapeutic level would seem to range between 8 and 12 mg. per hundred cubic centimeters, and significant toxicity begins to appear at from 15 to 30 mg. The individual tolerance varies greatly, the different levels being obtained with widely varying doses. The cyanates may reach hazardous concentrations . . . in some individuals, so that the administration of the thiocyanates is believed to be dangerous unless controlled by close observation and blood cyanate determinations."

Robinson and O'Hare,⁹ following Barker's¹¹ lead of controlling the situation by analyzing the blood for cyanates, found that a level of from 7 to 12 mg. per hundred cubic centimeters was the optimal blood cyanate concentration and that great care should be taken with blood levels above 12 mg. per hundred cubic centimeters. In seventy-five cases average drops of 40 mm. systolic and 20 mm. diastolic occurred in 63 per cent; hypertensive headaches were relieved in eighteen of twenty cases. Toxic symptoms occurred in twenty-nine cases, or 38 per cent. The less serious toxic complications, accounting for twenty-three of these twenty-nine cases, consisted of nausea, weakness, dermatitis, purpura and a decrease in libido. Serious complications consisting of dermatitis exfoliativa, congestive heart failure, cerebral thrombosis, angina pectoris and psychoses occurred in six cases.

There is no doubt that the thiocyanates in sufficient doses will lower blood pressure and relieve the symptoms of hypertension, though their administration is associated with considerable danger. Nichols¹² some

time ago, recognizing these possibilities, suggested that thiocyanates be given intermittently, during a week or two each month, and that a course of treatment should be instituted whenever the blood pressure rises. Control of the thiocyanate administration by quantitative determination of the cyanates in the blood, as suggested by Barker, is a distinct advance in this therapy. The original conclusion of Barker that the optimal therapeutic level ranges between 7 and 12 mg. per hundred cubic centimeters of blood and that higher concentrations may be associated with toxic manifestations has been verified and furnishes an excellent guide to the rational use of the cyanates.

Davis and Barker^{12a} found, in a small group of patients who were resistant to thiocyanate therapy, that section of the splanchnic nerves, in some unknown manner, increased the sensitivity to the thiocyanates and made them effective in reducing blood pressure.

Iodide.—Small doses of potassium or sodium iodide, from 0.065 to 0.3 Gm. (1 to 5 grains), will sometimes prove to be effective remedies for hypertension. Why they are of value in the occasional case and not in all cases is not clear. This dose of the iodides should be given in solution, well diluted, once a day. Large or progressively increasing amounts of the iodides as they are administered for syphilis do not accomplish anything in essential hypertension. Tablets are available of organic iodine compounds such as calcium iodobenenate, U. S. P. (sajodin), or lipoiodine-Ciba, and one or two of these tablets a day may be more convenient for the patient than the fluid medication. Iodide has been marketed in various combinations with the barbiturates, calcium and theobromine for the treatment of hypertension; such prescriptions may be devised according to the judgment of the individual physician.

Miscellaneous Remedies.—Tissue extracts taken from the pancreas, liver, muscle and elsewhere have been used and endorsed; after prolonged and intensive trial thus far none of them have proved satisfactory in the treatment of hypertension.

Histamine, acetylcholine, acetyl-beta-methylcholine according to Weiss¹³ are either unsuitable or ineffective for the treatment of persistent hypertension.

Internal secretions have not been successfully applied in the treatment of hypertension; this does not gainsay that they should not be prescribed when they are indicated for various conditions that may coexist with hypertension. It is interesting and worthy of note that the idea that hyperadrenalism is responsible for hypertensive states is losing ground.¹⁴

Watermelon seed and mistletoe have yielded various preparations that have been accredited with the properties of lowering blood pressure; however, they have not received general endorsement.

SUMMARY

Since there are no means by which an elevated blood pressure can be appreciably and consistently lowered, the medical treatment of hypertension has resolved itself into the establishment of the most perfect possible physical and mental control of the patient; in this therapeutic scheme drugs are important for the achievement of the utmost results.

889 Lexington Avenue.

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THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE.

HOWARD A. CARTER, Secretary.

SHOES AND FEET

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In this discussion of the foot problem I propose to divide the subject into two parts:

1. The problem of the symptomless foot.
2. The problem of the painful foot.

This division would seem logical, since the painless foot may at any time become an exquisitely painful one. Therefore, proper shoeing of such a foot must necessarily be prophylactic. It will be shown in the following discussion that shoes can be made and properly fitted to a normal foot.

THE SYMPTOMLESS FOOT

It is practically impossible to define a normal foot, since it is obvious that no two feet are exactly alike even in the same individual. There are, however, some things common to all so-called normal feet: the number of bones, articulations, ligaments, fasciae, tendons, muscles, nerves and circulatory apparatus. All these structures conform more or less to a regular pattern in their relations to one another. A normal foot may be defined as one that exhibits through its life history no subjective or objective symptom or pathologic condition. A so-called normal foot, however, may become a painful or abnormal one under certain conditions. A foot that shows physical abnormalities may be perfectly normal from the point of view of function and painlessness.

The normal foot, then, shows certain definite physical aspects which are common to all feet, but these feet vary in size, shape and contour both in the non-weight bearing and in the weight bearing position. Such a foot, when subjected to bad shoeing, bad weight bearing surfaces or overweight, may gradually or suddenly become painful. Normal feet may become abnormal as the result of illness, sedentary occupations or bad posture. A foot that is normal in the country where the individual lives on the ground may be a very painful one when suddenly required to carry the owner about on city pavements. In the days of the horse it was learned that when the horse's feet and legs began to give out on paved city streets they would recover if the horse was sent to the country and placed in a soft pasture.

It has been stated by many writers that the foot should be shod in such a manner as to imitate the foot of the savage in his native habitat. The answer to this is that when the savage visits the city his feet will not stand up under the vicissitudes of pavements and hard floors. Civilization requires that those who live in civilized communities must wear shoes. The individual requires from the shoe shop shoes that look well and that conform to the style of the day. The sensitive and fastidious person resents anything that makes him abnormally conspicuous. Shoes that look and seem freakish are not well tolerated by these individuals. Therefore the so-called corrective, anatomic and orthopedic shoes are not well accepted by the majority of persons.

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It is possible also that a normal foot without symptoms of any trouble may become a painful foot in such shoes because they do not fit the individual foot in every particular. Buying a pair of shoes is much like buying a hard hat. If the hat does not conform to the irregularities of the skull it may be very uncomfortable. One must therefore try on several hats to find one that is comfortable. The hat situation is different from the shoe situation only in that the weight of the body is on and in the shoe.

SHOE PROBLEMS

Shoes in this country are constructed on standard lasts, and it is here that trouble begins. Feet do not conform to these standard lasts even though there are variations in sizes and shapes of shoes. It is well known that two pairs of shoes made on the same last will not feel the same on a pair of feet. This is due to differences even in the same material and also to the fact that wet leather, wetting the last, does not draw on the last in exactly the same manner, so that the second pair will not be a duplicate of the first pair. There are no two feet exactly alike even of the same individual. Thus the problem of properly fitted shoes is an individual one for each foot. Since more than 400,000,000 pairs of shoes are manufactured in this country yearly it would seem unwise to embark on an ideal program that would meet the needs of individuals: the economics of the present shoe situation would be ruined and the cost of shoes would be prohibitive both for the manufacturer and for the consumer. This does not mean that the situation cannot be improved. There is no doubt that something can be done to improve materially conditions as they now exist without extra cost to the manufacturer or to the consumer.

The requirements for a satisfactory shoe to be used on a symptomless foot are:

1. Length.
2. (a) Width of sole and height over toes.
(b) Width of heel.
3. Height over instep.
4. Line of shoe.
5. Height of heel.
6. Shank of shoe.

1. *Length*.—The shoe must be of sufficient length so that the end of the great toe is not against the toe end of the shoe. (a) Variations in length must provide for the increase in the length of the foot of those who carry heavy loads. (b) The shoe must not be so long that the foot slides forward from the heel upper of the shoe.

2. *Width*.—The front of the shoe, for example the vamp, should be wide enough so as not to compress unduly the toes at the sides or on top. This part of the shoe, however, must be snug so that the leather will not wrinkle. If the width of this end of the shoe is too great the forefoot will slide about and corns and calluses will form. A similar condition will result if the vamp is too tight; also the action of the toes will be cramped. A fault altogether too common in ready made shoes is that the heel inside the shoe is too wide. This fault allows the foot to slide laterally and the heel to slip up and down with each step. The heel should be held snugly both at the sides and behind. It ought to be a part of the manufacturer's job to pay as much attention to heel widths as to sole widths.

3. *Height Over Instep.*—There is not room enough in the average shoe over the instep, especially for the medium to highly arched foot. When shoes are put on such a foot they are laced so snugly that the instep is pushed downward, thus mechanically elongating the foot and stretching the arch so that in time symptoms of foot strain may develop.

4. *Line of Shoe.*—The line of the shoe must correspond to the lines of the sole of the foot. No attempt should be made to have the shoe thrust its lines laterally against the lines of the sole either outwardly or inwardly. To do so will unduly compress the side of the foot and cause irritation and corns. This is especially true in cases in which there is a circulatory disturbance of the feet or diabetes.

5. *Height of Heel.*—Attempts have been made to have bills passed in the state legislatures to regulate the height of heels. It would be just as sensible for these bodies to legislate standard eyeglasses for eye troubles. The height of the heel should depend on the loss of passive dorsal flexion of the foot and should be tested as follows:

The subject is seated with his ankle resting on the examiner's hand; the knee is completely extended; the leg level and all the muscles in that extremity are completely relaxed. The examiner adducts the foot very slightly and gently passively dorsiflexes the foot until it will go no further under gentle manipulation. He then estimates or measures the loss of dorsal flexion, if any, by measuring the distance between the sole of the heel and a plumb line falling from the great toe joint. This distance will give the height of heel necessary for that individual. Any heel lower than this may cause pronation of the foot, spreading of the forefoot and pain and cramps in the calf of the leg and also cause callosities to form under the ball of the foot. It may even cause symptoms of knee and back strain.

The highly arched foot, by and large, is apt to be associated with a short heel cord. When a person with this type of foot stands it will be seen that pronation and lateral squatting of the feet occur and must occur if the person is to get his heels on the ground. When such a person is asked to rise on tiptoe it will be seen at once that the pronation disappears. Persons with this type of foot are usually fast walkers and love agile games and dancing. They dislike to stand about and if required to do so for any length of time find themselves leaning against or resting on some support. When long standing is required, general fatigue is apt to ensue.

6. *Shank of the Shoe.*—Probably less intelligent attention is paid to the shank of the shoe than to any other portion. From an engineering point of view the shank fit is most important. It has been stated by many that a support under the arch splints the muscles of the sole and causes muscle atrophy. If this is so, then why not discuss atrophy from shoe pressure on other parts of the foot? A steel beam, designed to carry a constant load, will carry twice as much weight if that weight is distributed over the length of the beam and is not concentrated in the center. This is more or less true of the foot except that the load is on the ends of the beam. If the whole sole of the foot is made a weight bearing surface, without undue pressure under the arch, it will be mechanically easier to carry the distributed load. It seems reasonable to suppose then that this principle applied to a shoe would at least minimize fatigue and improve the efficiency of the individual. To meet this situation in the shoe, the shank

must fit the individual foot; and since there are many variations in the height of arches, it is necessary to have the shank so constructed that it will fit each individual foot. This can be done. In most shoes there is a steel shank placed between the soles. This shank in general is always the same with the exception that some manufacturers have the shank a little higher or a little lower than others. Such shanks are usually so constructed that they break if one attempts to bend them. It is impossible, therefore, to fit this type of shank to the arch of the foot.

A solution is to construct a last a little higher than the present standard last and then to construct a shank which can be raised or lowered, which will not break when bent or when under a load, and which will stay put once it is fitted up to the arch by being bent up or down as occasion requires. Such a shank can be built.

The stiff, hard shank is breakable and cannot be adjusted and its only merit is that it prevents the shank of the shoe from becoming flattened out. It does help to keep the shape of the shoe as age creeps on it.

The shoe without a shank, or the plastic type, is easily bent and sags under a load. It allows the front of the sole and the toes to turn upward, which makes the top of the shoe pull the instep downward. These shoes are supposed to imitate the mocassin of the savage who lives on mother earth but not on concrete.

Schwartz¹ with his basograph has shown that the normal person walks in this manner: The heel strikes the ground first, then in moving the body forward to complete the step the outer border of the foot is in contact with the ground, especially the fifth metatarsal, at which point most of the body weight is borne. Next the great toe joint and the great toe strike the ground, propelling the body forward by a tremendous thrust toward the next step by the opposite leg. If the shank of the shoe fits up gently under the sole of the foot, the foot in the second and third positions has enough additional even distribution of its weight bearing surface on the sole to relieve the strain on the fifth metatarsal body and head and under the great toe. In the standing position, which is harder on feet than any other, the snugly fitted shank relieves the three contact points of the foot of some of the weight which they are called on to support in the average shoe as at present constructed.

Shoes built on the scheme as outlined should not be considered as corrective, orthopedic or anatomic. They should be regulation shoes for all who must wear shoes. They may be considered to be preventive shoes. The shoe clerk must be taught how to fit the shanks as well as other points of the shoe. There should be as much attention paid to teaching the fitting of this part of the shoe as there is to any other part. However, the shoe clerk must not get the idea that in fitting these shoes he is going to relieve all foot ailments. He is already doing that very thing with the so-called corrective shoes, but, unfortunately for the public, he does not know just exactly what he is doing. People with abnormal foot conditions should consult their physicians; if the physician cannot help his patients he should refer them to the consultant in whom he has confidence.

A shoe constructed on the lines laid down will not cost the manufacturer any more than does the shoe he is now making. Therefore, the serious objection of

1. Schwartz, Plato; Heath, Arthur; Mivick, William, and Wright, John: *Kinetics of Human Gait*, J. Bone & Joint Surg. 16: 313-339 (April) 1934.

cost to the manufacturer and wearer is nil. It should be possible for all manufacturers to plan and make shoes on the principles described so that all may be treated without discrimination.

THE PAINFUL FOOT

The problem of the relief of patients whose feet are giving them trouble cannot be solved by a single universal remedy, i. e. the orthopedic shoe. In the first place there are too many different kinds of painful feet and in the second place no two feet are alike. It would seem, then, that the present orthopedic shoe is designed so that the foot must fit the shoe instead of the shoe fit the foot. When those members of the medical profession who are interested in foot troubles and the manufacturers of shoes realize this fundamental principle and get together on it, a solution of part of the problem may be reached.

Each patient with symptoms of pain in his feet is an individual whose anatomic, physiologic and pathologic condition is not exactly the same in all details as his neighbor, even though he may be suffering from the same complaint. A review of some of the causes of painful feet will convince almost any one that a standardized orthopedic shoe cannot possibly be the answer. Pain in the feet may be due to bad mechanics or to disease.

Under bad mechanics can be listed ill fitting shoes, sedentary life, sudden change of weight bearing surfaces from soft to hard, change of occupation, overweight, fatigue, carrying heavy loads when it has not been done before, congenitally weak feet, relaxed feet in which there is increased mobility especially in the pronated and abducted positions, weakness due to debilitating diseases, and bad union of fractures in the legs and feet.

Under diseases may be included circulatory disturbances (intermittent claudication, Buerger's disease, varicose veins), diabetes, arteriosclerosis, Sudeck's atrophy, arthritis, gout, rigid valgus from peroneal spasm, diseases and injuries involving the peripheral nervous system, e. g. poliomyelitis and spastic paralysis.

When a patient is seen who complains of pain in the arches, feet, ankles, toes, calves of the legs, knees and thighs and sometimes a lame back, one should not be too ready to accept a diagnosis of "broken arches." A thorough examination of the feet should be made to see whether the trouble is due to foot strain, but further examination is necessary to find out whether or not there is some underlying constitutional or circulatory difficulty present which may account for the symptoms.

SYMPTOMS

Pain is the predominating symptom of foot strain and may occur in the toes, in the ball of the foot, under the arch in the plantar structures, through the instep (especially on the medial aspect), about the internal malleolus and, if pronation is present, about the external malleolus, under the os calcis, in the calf of the leg, along the shin bone, in the knee under the patella or patellar tendon, about the internal condyle, in the thigh muscles and in the low part of the back, either the sacral or the lumbosacral region. These symptoms may occur singly or there may be combinations of locality; e. g. a patient may have backache without pain elsewhere in the lower extremities. Cramps may be complained of in the toes, soles of the feet or any of the leg muscles, especially the calf. The "growing pains" of children are nearly always due to foot strain and not to "rheumatism."

EXAMINATION

The foot should be examined in two positions—weight bearing and at rest. In the weight bearing position one should note the relation of the feet to the knees. Does the forefoot spread? Are there deformities of the toes when the patient is standing which are present or absent when he is sitting? Does the whole forefoot abduct? Does the foot pronate? Does it abduct and pronate? Do or do not the pronation and abduction disappear when the patient is asked to stand on tiptoe?

The whole diagnosis of the condition should not be made from the weight bearing position. Many a patient has been turned down for military or other service because a diagnosis of flatfoot has been made with the patient standing barefoot. This is all wrong and should be fought vigorously. A person under general physical examination who has this type of foot on weight bearing is usually perfectly normal in the ordinary well built shoe which meets the specifications of shoes for normal feet.

In examining the foot at rest the examiner looks for signs of abuse, such as corns on the toes, calluses under the ball of the foot or on the inner aspect of the great toe or over the lateral aspect of the head of the fifth metatarsal, bunions, hallux valgus, valgus minimi digiti, cock up toes, hammer toes, depression of the heads of the second, third and fourth metatarsals, prominent scaphoids, exostoses especially on the dorsum of the foot, hallux rigidus, swelling about the ankle joint, over the dorsum or under the sole of the foot, thickening of the os calcis, especially about the insertion of the achilles tendon, wind puffs about the malleoli, thickening of the achilles tendon and lower calf muscles and the occurrence of nodes in these areas. The circulation in the dorsalis pedis and posterior tibial vessels should always be tested and the color of the skin noted with the feet elevated and hanging. One should examine the patient for plantar warts and perforating ulcers, which are seen in spina bifida, syphilis, diabetes and syringomyelia.

The height of the arches should be observed and tested for loss of active motion and loss of passive motion; that is, rigidity of any of the joints—toes, forefoot, ankle and subastragalar joints. Limitation of active and passive motion is seen in arthritis, rigid valgus, tuberculosis and infections of the foot. In cases of rigid valgus there is spasm of the peroneal muscles which can be seen and felt. Loss of passive dorsal flexion of the foot with the knee straight is a common finding in normal feet which have an arch higher than the average and is a precipitating factor in foot strain when associated with other conditions that are recognized causes of painful feet. In obscure cases of painful feet a general physical examination should be made and x-ray films of the feet should be taken. Tests of the strength of the muscles controlling the action of the foot are helpful but are not essential.

The old shoes that a patient wears should always be examined, since considerable information can be obtained by noting what happens to the soles, the heels, the counters and the uppers. Persons with short heel cords scuff off the sole at the tip. Pronated feet wear the heels on the inner side. Weak feet that abduct do this, and they also wear the sole away under the great toe joint. When the heads of the middle metatarsals are low a hole is worn in the bottom of the sole. In instances of cock up toes associated with contracted feet the front end of the shoes is apt to turn upward.

The examiner should observe how the patient stands in his shoes. Does he pronate? Is the waist of the shoe on the inner side stretched out and is there a gap between the outer side of the upper and the side of the foot? Do the little toes squat the leather laterally over the outer edge of the sole?

TREATMENT

It must be perfectly obvious, even to the uninitiated, that no special type of shoe can be designed to solve all the difficulties that have been mentioned in this article. The patient should be told to go shopping for a shoe that is comfortable on his feet; then, in most instances, some alteration can be made in that shoe to make it fit more perfectly. This can be brought about in several ways. The heel can be raised all over in order to compensate for the patient's loss of passive dorsal flexion. If there are bunions present, the area over the bunion can be stretched as much as one-half inch if necessary. The shank of the shoe can be brought up to the patient's arch by removing the old shank and inserting a longer, higher shank of untempered steel, which can be raised or lowered, as necessary, until the sole of the shoe is touching the arch of the foot. After a few days' trial, if the shoe is comfortable, the shank is removed and a plaster mold is made of it. The shank is now tempered, refitted to its cast and then placed permanently in the shoe. The cast is kept for future shanks.

When the symptoms of foot strain are more severe it will be necessary to use an arch support made of leather, felt, sponge rubber or metal. There are some fundamental principles involved in fitting supports to painful feet. Elderly persons cannot stand hard supports, and children do better with supports that are flexible. The chief object in fitting a support to a patient's foot is to supply a device which will make a comfortable shoe fit that individual foot more perfectly. The arch support which can be purchased in a store will not answer the purpose for long, because experience has shown that such supports usually furnish only temporary relief from pain. When the pain returns it needs an expert to make further adjustments in any support so that it will continue to give relief as the foot improves. This improvement does not mean that the arch of the foot gets increasingly higher. It does mean that the abnormal position of the foot improves and, as a result, the support no longer fits but must be adjusted; otherwise the patient will be uncomfortable.

Sometimes there is so much pain from foot strain that no form of shoeing or altering of the shoe will give relief. In such instances it is best to keep the patient off his feet entirely until the pain has gone. In most severe cases metal supports are necessary. There are many types and shapes of these, most of which are made from steel hammered by a blacksmith over a plaster cast of the patient's feet. These casts are usually cut so that the arch will conform to the foot. The plate is tempered and applied. It may or may not help. It may have to be hammered up or down so that it will fit better. Hammering tempered steel has the disadvantage that when one hammers it in one place the contours of the whole plate change more or less, so that it is thrown up or down in some places which should not be changed.

There is another disadvantage to cast-made plates and that is that the patient has to wait several days before the plate is ready for trial. I have tried all

methods. In the mild cases, removable felt or sponge rubber pads that can be made higher or lower are used. In the more severe cases, steel plates are used and fitted after the method of the late Dr. Robert W. Lovett. These steel arch supports are made on dies in two widths and in varying sizes from $2\frac{1}{2}$ up to $6\frac{1}{2}$. The size of the plate is determined by the position of the front end, which should come just at the neck of the first metatarsal. The support is now adjusted to fit the patient's foot by bending it with a monkey wrench and hammering it on a piece of pig lead so that it will not crack. The bending and hammering go on until the patient says he is comfortable when he stands and walks. He is instructed to wear the supports for two or three hours at a time during the day for a period of a few days and then return for further adjustments, which are always necessary if any improvement takes place.

When complete relief has been obtained, a cast is made of the plate. The plate is tempered, fitted to the cast, covered with leather and given to the patient. It may be necessary to make further slight adjustments, and these are done by hammering the plate on a flat piece of pig lead. When there are symptoms of Morton's toe the untempered plate can be raised locally behind the head of the affected metatarsal until the metatarsalgia disappears. The advantage of this simple method of treating acute foot strain is that the patient leaves the doctor's office treated; in other words there is no waiting. Devices built into the inside of the shoe are used constantly by many surgeons, and with more or less success. However, these devices are difficult to remove from the shoe and are also difficult to alter.

One of the stated objections to the metal plate is that it causes atrophy of the foot. There is no reason to uphold this theory if the foot is properly supported by the shoe and the plate. If the plate is truly a source of atrophy then any supporting device will cause atrophy. Is it not also true that atrophy occurs in the untreated painful foot? In the milder cases of foot strain the shoe recommended for the normal foot will serve, especially if the shank is raised from time to time as improvement of the foot progresses. Raising the inner border of the heel will help to correct the pronated foot and may be incorporated in the methods described.

EXERCISE

To prescribe exercises for a painful, uncomfortable foot which is already overburdened does not seem sound therapy. When the symptoms have been relieved, however, exercises are indicated. They are also indicated in the weak, pronated feet of children and adults. Too many patients become easily discouraged with foot exercises and give them up long before benefit can be expected. The reasons for this are boredom, lack of interest in prolonged treatment and too many exercises to be done at a time. If the exercises can be boiled down to one maneuver, the surgeon will get more cooperation. This one maneuver will increase the tone of all the muscles that control the arch of the foot. The patient is shown how to flex all his toes strongly and at the same time he dorsiflexes, adducts and inverts the foot. This position is held momentarily. The contracted muscles are relaxed slowly and the contractures are repeated several times, morning and evening. One will find that, in the long run, more patients will perform this combined exercise than would do a dozen different exercises ten times each.

COUNCIL ON FOODS

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Council on Foods

ACCEPTED FOODS

THE FOLLOWING ADDITIONAL FOODS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO ACCEPTED FOODS.
FRANKLIN C. BING, Secretary.

FRUIT JUICES INCLUDING TOMATO JUICE (See Accepted Foods, 1939, p. 48).

American Grape Juice Corporation, Fredonia, N. Y.
FREEDOM BRAND GRAPE JUICE, sweetened, bottled, pasteurized grape juice prepared from Concord grapes.
Analysis (submitted by manufacturer).—Moisture 82.5%, total solids 17.5%, ash 0.2%, fat negligible, protein (N \times 6.25) 0.3%, invert sugar 15.1%, carbohydrates (by difference) 15.8%, titratable acidity as tartaric acid 1.2%; lead (Pb) 0.2 part per million, arsenic trioxide (As₂O₃) less than 0.1 part per million.
Calories.—0.64 per gram; 18 per ounce.
TAFTS BRAND GRAPE JUICE, same as Freedom Brand Grape Juice.

Quaker Maid Company, Inc., New York.
ANN PAGE BRAND TOMATO JUICE.
Analysis (submitted by manufacturer).—Moisture 94.1%, total solids 5.9%, ash 0.9%, sodium chloride (NaCl) 0.6%, fat (ether extract) trace, protein (N \times 6.25) 1.0%, reducing sugars as invert 2.6%, carbohydrates other than crude fiber (by difference) 4.0%, acid (as citric) 0.47%, pH 4.13, specific gravity at 20 C. 1.025.
Calories.—0.20 per gram; 6 per ounce.
Vitamins.—Chemical titration by the dye method (1938) shows that the product contains 0.2 mg. of ascorbic acid per cubic centimeter, 0.195 mg. per gram, 5.54 mg. per ounce, or 111 international units of vitamin C per ounce.

Rio Grande Valley Citrus Exchange, Weslaco, Texas.
TEXSUN BRAND GRAPEFRUIT JUICE UNSWEETENED.
Analysis (submitted by manufacturer).—Moisture 89.5%, total solids 10.5%, ash 0.3%, fat (ether extract) 0.1%, protein (N \times 6.25) 0.4%, sucrose 3.1%, invert sugar 5.1%, crude fiber 0.1%, carbohydrates other than crude fiber (by difference) 9.6%.
Calories.—0.4 per gram; 11.4 per ounce.
Vitamins.—Chemical titration (1938) showed an average of 0.32 mg. vitamin C per cubic centimeter of juice, or 600 international units per hundred cubic centimeters of juice.

GRAIN PRODUCTS (See Accepted Foods, p. 97).

The Teichgraber Milling Company, Gypsum, Kan.
GLORY BRAND CRACKED WHEAT, coarsely ground wheat from which about 3 per cent of the endosperm has been removed.
Analysis (submitted by manufacturer).—Moisture 10.4%, total solids 89.6%, ash 1.6%, fat (ether extract) 1.0%, protein (N \times 5.7) 12.1%, crude fiber 3.0%, carbohydrates other than crude fiber (by difference) 71.9%.
Calories.—3.45 per gram; 98 per ounce.

PREPARATIONS USED IN THE FEEDING OF INFANTS (See Accepted Foods, 1939, p. 156).

Libby, McNeill & Libby, Chicago.
LIBBY'S BRAND HOMOGENIZED CARROTS.
Analysis (submitted by manufacturer).—Moisture 91.9%, total solids 8.1%, ash 1.2%, sodium chloride 0.6%, fat (ether extract) 0.1%, protein (N \times 6.25) 0.8%, crude fiber 0.8%, carbohydrate other than crude fiber (by difference) 5.2%, calcium (Ca) 13.0 mg. per 100 Gm., phosphorus (P) 19.8 mg. per 100 Gm., iron (Fe) 1.0 mg. per 100 Gm., copper (Cu) 0.231 mg. per 100 Gm.
Calories.—0.23 per gram; 6.5 per ounce.
Vitamins.—Protocols of biologic assay (1939) show that the product contains 32.7 U. S. P. units of vitamin A per gram, 927 per ounce; vitamin B₁ is practically absent; less than 0.20 Sherman-Bourquin unit of vitamin G (riboflavin) per gram, less than 5.7 per ounce; and, according to report of chemical titration (1939) 0.39 international unit of vitamin C per gram, 11.2 per ounce.

Merek & Co., Inc., Rahway, N. J.
MEREK MILK SUGAR (LACTOSE U. S. P.).
Analysis (submitted by manufacturer).—Specific rotation at equilibrium +52.2° to +52.5° corresponding to 99.5% lactose. A solution of 1 Gm. of lactose in 20 cc. water is neutral to litmus. Ash not more than 0.1%. Meets U. S. P. tests for heavy metals, dextrose and sucrose. Dextrin and starch absent.
Calories.—About 3.8 per gram; 109 per ounce, depending on the amount of water present.

Mead Johnson & Company, Evansville, Ind.
MEAD'S PECTIN-AGAR IN DEXTRI-MALTOSE, a powdered mixture of Mead's Dextri-Maltose No. 1 (containing 2 per cent sodium chloride).
Analysis (submitted by manufacturer).—Moisture 2.0%, total solids 98.0%, ash 2.5%, protein (N \times 6.25) 1.0%, crude fiber 0.3%, carbohydrates other than crude fiber (by difference) 94.2%.
Calories.—3.5 per gram; 99.3 per ounce.

* Mead's Dextri-Maltose No. 1 with 2 per cent of Sodium Chloride is described on page 176, Accepted Foods, 1939.

Feet which show circulatory disturbances must be shod in such a way that there is no rubbing or undue pressure on any one spot in order to avoid the formation of corns, calluses, abrasions, blisters and gangrene. The underlying condition must be treated when possible. The wearing of proper footgear may postpone amputation of a diabetic leg.

In this article no attempt has been made to discuss the surgical procedures that are applicable to the many complicated foot troubles; i. e. hallux valgus, bursitis, accessory scaphoids and spurs. To do so would involve more than is intended in the mechanical treatment of the painful foot.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.
PAUL NICHOLAS LEECH, Secretary.

ESTRIOL-ABBOTT (See New and Nonofficial Remedies, 1939, p. 348).

The following dosage form has been accepted:
Capsules Estriol 0.24 mg.: Each capsule contains estriol 0.24 mg. diluted with milk sugar.

SODIUM CACODYLATE (See New and Nonofficial Remedies, 1939, p. 104).

The following have been accepted:
Ampoules Sodium Cacodylate-Upjohn, 0.05 Gm. (3/4 grain), 1 cc.
Prepared by the Upjohn Co., Kalamazoo, Mich.
Ampoules Sodium Cacodylate-Upjohn, 0.1 Gm. (1 1/2 grains), 1 cc.
Prepared by the Upjohn Co., Kalamazoo, Mich.
Ampoules Sodium Cacodylate-Upjohn, 0.2 Gm. (3 grains), 1 cc.
Prepared by the Upjohn Co., Kalamazoo, Mich.
Ampoules Sodium Cacodylate-Upjohn, 0.32 Gm. (5 grains), 1 cc.
Prepared by the Upjohn Co., Kalamazoo, Mich.
Ampoules Sodium Cacodylate-Upjohn, 0.45 Gm. (7 grains), 1 cc.
Prepared by the Upjohn Co., Kalamazoo, Mich.
Ampoules Sodium Cacodylate-Upjohn, 0.97 Gm. (15 grains), 2 cc.
Prepared by the Upjohn Co., Kalamazoo, Mich.

The following have been accepted:
Ampuls Sodium Cacodylate-Merrell, 0.05 Gm. (3/4 grain), 1 cc.
Prepared by The William S. Merrell Company, Cincinnati.
Ampuls Sodium Cacodylate-Merrell, 0.1 Gm. (1 1/2 grains), 1 cc.
Prepared by The William S. Merrell Company, Cincinnati.
Ampuls Sodium Cacodylate-Merrell, 0.2 Gm. (3 grains), 1 cc.
Prepared by The William S. Merrell Company, Cincinnati.
Ampuls Sodium Cacodylate-Merrell, 0.32 Gm. (5 grains), 1 cc.
Prepared by The William S. Merrell Company, Cincinnati.
Ampuls Sodium Cacodylate-Merrell, 0.45 Gm. (7 grains), 1 cc.
Prepared by The William S. Merrell Company, Cincinnati.

LUNOSOL (See New and Nonofficial Remedies, 1939, p. 457).

The following dosage forms have been accepted:
Unguentum Lunosol 5 Per Cent-Hille.—Lunosol, 5 Gm., incorporated in 95 Gm. of an unguent base composed of 11 Gm. of water, 52.5 Gm. of anhydrous lanolin and 36.5 Gm. of liquid petrolatum in each hundred grams.
Unguentum Lunosol 10 Per Cent-Hille.—Lunosol, 10 Gm., incorporated in 90 Gm. of an unguent base composed of 17.5 Gm. of water, 55.5 Gm. of anhydrous lanolin and 27 Gm. of liquid petrolatum in each hundred grams.

PONTOCAINE HYDROCHLORIDE (See New and Nonofficial Remedies, 1939, p. 73).

The following dosage forms have been accepted:
Ampules Pontocaine Hydrochloride "Niphanoid" for Spinal Anesthesia, 10 mg.: Ampules containing pontocaine hydrochloride in finely divided and instantly soluble form. The trade term "Niphanoid" (from the Greek, "snow like") is applied to the process whereby dilute solutions of the drug are subjected to rapid freezing and subsequent evaporation of the solvent under high vacuum; the resultant material is claimed to be more readily soluble.
Ampules Pontocaine Hydrochloride "Niphanoid" for Spinal Anesthesia, 20 mg.: Ampules containing pontocaine hydrochloride in finely divided and instantly soluble form. The trade term "Niphanoid" (from the Greek, "snow like") is applied to the process whereby dilute solutions of the drug are subjected to rapid freezing and subsequent evaporation of the solvent under high vacuum; the resultant material is claimed to be more readily soluble.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 20, 1940

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.
2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on a basis of such need.
3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.
4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.
5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.
6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.
7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.
8. Expansion of public health and medical services consistent with the American system of democracy.

VIRUSES AND THEIR PROPERTIES

The approximate dimensions of many of the viruses now have been determined by careful utilization of methods such as filtration, centrifugation, diffusion and direct microscopic mensuration. Some viruses are relatively large, with diameters of 175 millimicrons; others are of the same order of magnitude as certain protein molecules. The virus of foot and mouth disease, for example, is from 8 to 12 millimicrons in diameter as contrasted with the serum albumin molecule, which has a diameter of approximately 5 millimicrons.¹ Furthermore, information has become available in recent years on the shape, density, electrical charge and cultivation of viruses.

Possibly the most significant development has been in the extension of knowledge of the physical and

chemical properties of viruses. The studies of Stanley² and his co-workers on the homogeneity of the high molecular weight material isolated from tobacco mosaic diseased plants have been particularly significant. In brief, the experimental results of this work indicate that for practical purposes the crystalline proteins isolated possess the properties of tobacco mosaic virus. Comparison with other purified virus preparations reveals quite different and highly characteristic chemical, physical and serologic properties. Tobacco mosaic virus consists of long rods; treatment with salt or other agents causes two or more of these rods to combine end to end. This phenomenon permits, Stanley believes, a rational explanation of the puzzling filtration behavior of tobacco mosaic virus, which has been reported to have a filtration end point varying all the way from about 13 millimicrons to over 300 millimicrons.

All viruses appear to be or at least to contain nucleoprotein. The ability of organisms to reproduce is associated with nuclear material. Usually it is assumed that the basic unit of this material is a gene, perhaps a single nucleoprotein molecule. Moreover the properties of viruses composed of nucleoprotein are, according to Stanley, essentially the properties which would be postulated for a gene or for a group of genes were they capable of independent existence. The implications of this structural relationship are of great importance in genetics, and the studies which can now be made on virus reproduction and mutation may have a direct bearing on similar events within cells. As pointed out by Mueller,³ however, there is a great diversity of properties, chemical and physical, manifested by various types of viruses. The inclusion, therefore, of agents differing so widely among themselves is perhaps unfortunate, although any reclassification today could be accomplished only on the basis of size, which would be of little practical value.

The characteristic structure which permits a virus to participate in the metabolic chain of events within cells may be related to the initiation of the cancer process. According to Andrewes,⁴ theories about cancer which claim that a virus or viruses enter into the etiology of cancer must postulate that such a virus or viruses are widely distributed in the animal kingdom and that they are normally latent infections but are activated by some stimulus such as the application of a carcinogenic hydrocarbon. Andrewes does not believe that these possibilities can be dismissed lightly, although admittedly there is little concrete evidence that cancer in general is caused in the manner suggested. However, in fowl paralysis, which is certainly related to neoplasms, the causative agent, although not yet demon-

2. Stanley, W. M.: Properties of Viruses, *Medicine* 18: 431 (Dec.) 1939.

3. Mueller, J. Howard: Physical and Chemical Properties of Filtrable Viruses: Virus and Rickettsial Diseases, in *Harvard School of Public Health Symposium Volume*, Harvard University Press, 1940.

4. Andrewes, C. H.: Latent Virus Infections and Their Possible Relevance to the Cancer Problem, *Proc. Roy. Soc. Med.* 32: 75 (Dec.) 1939.

1. Rivers, Thomas M.: Viruses and Virus Diseases, Lane Medical Lectures, Stanford, Calif., Stanford University Press, 1939.

strated to be a virus, can be transmitted from the mother through the egg. Likewise the development of potent antibodies to the Rous virus by fowls grafted with tar sarcoma offers at least suggestive evidence of some relationship. Finally, the observations of Bittner on breast sarcoma in mice cited by Andrewes and other observations on the so-called toothless viruses suggest some curious if at present still obscure relation to cancerous growth. Little can be added to the summarization by Rivers:

It is an acknowledged fact that some tumors are caused by viruses; at least, most investigators will admit that some viruses produce hyperplastic growths with all the immediate traits of tumors. Indeed, hyperplasia and necrosis are such important phenomena in the pathological pictures induced by viruses that pertinent remarks had to be made concerning tumors if for no other reason than to emphasize the fact that such disease processes as tumors, warts, measles, fever blisters, smallpox, varicella, poliomyelitis, rabies, yellow fever, fowlpox, foot and mouth disease of cattle, tobacco mosaic, and bacteriophagy, in spite of their striking clinical differences, possess in common characteristic pathological pictures.

Quietly and unostentatiously, painstaking research has gone on in this field. No doubt further information on the nature and properties of viruses will be adapted rapidly to serve the practical needs of preventive and therapeutic medicine.

NEW REGULATIONS ON MEDICINAL FOODS

Beginning on April 29, hearings will be held by the Food and Drug Administration in Washington in order to develop regulations concerning informative labeling of so-called "special purpose" foods with relationship to their vitamin, mineral and other dietary properties. All interested persons are invited to attend these hearings or to send representatives who may wish to present evidence with a view to aiding the Food and Drug Administration in developing suitable regulations. The hearings are being held in accordance with the procedure that has been developed to permit the food industry, consumers and others to offer their views on regulations proposed under the authority granted to the Secretary of Agriculture by the Food, Drug and Cosmetic Act. The regulations to be discussed concern section 403(j) of the act, which deals with foods for special dietary purposes. The mere fact that certain foods may be especially prepared for infants, children, aged persons or persons suffering or convalescing from disease makes them special purpose foods under the law. Preparations especially designed for increasing or decreasing weight or otherwise affecting the structure or functions of the body are also in this category. If a food product is represented for use in the prevention or treatment of disease, it may be subject to the requirements of the regulations.

It is proposed in the new regulations to exempt foods if the vitamins, minerals or other constituents are naturally present in them and not artificially added, or if the foods do not represent extracts, concentrates or other artificial preparations of vitamin, mineral or other dietary factors. Furthermore, it is proposed to exempt foods for which special claims are not made in relationship to such factors. When a food is specifically designed for use in the treatment of various conditions of the type mentioned, it is proposed that its label indicate the dietary properties on which its value for such use is based and that it shall bear on the label directions for use, showing the quantity of the food to be consumed during any one period of one day, also any directions which might involve changes in the quantity of the food to be used when the amounts vary for persons of different ages. However, such labeling and the specific labeling regarding use of such foods for vitamin and mineral content will not apply if the food is to be used only by infants or invalids if the label bears statements showing definitely the quantities of the vitamins present or of minerals or if the label bears a statement that the product is to be used only under the prescription or under the direction of a physician. Furthermore, shipments in bulk of vitamin materials for repackaging are to be exempt.

Special statements are required regarding vitamins with a view to declaring the vitamin content by the common or usual name of each vitamin and indicating clearly what percentage of the minimum daily requirement of each vitamin is supplied by the food in the package. It is proposed that products containing vitamin D bear the statement that there is no special need for this vitamin in the diet provided the skin is adequately exposed to direct sunshine. Furthermore, it is proposed that food products containing vitamins not clearly established as useful or for which a minimum daily requirement has not been established shall bear on the label a statement indicating these facts. The proposed regulations define minimum daily requirements for each vitamin for persons of various ages. Similar statements are proposed regarding minerals in foods, particularly calcium, phosphorus, iron and iodine, with informative statements concerning the minimum quantities of these substances considered necessary as a daily requirement. Infant foods which are represented as substitutes for human milk are to be labeled with percentage statements of moisture, protein, fat and digestible carbohydrates and, if the amounts of certain ingredients are less than are considered desirable, the label is to bear a statement advising the purchaser that additional amounts of this substance must be secured from other sources. Furthermore, there are to be special regulations concerning foods which are believed to have diminished allergenic properties.

The problems raised by these considerations are obviously ones which will have most serious consideration by the medical profession, the officials of the Food and Drug Administration and the manufacturers of both foods and drugs. The difficulty of enlightening the average user as to the extent to which he may employ such materials for purposes of promoting health or the extent to which he must employ them for the cure of a deficiency should be apparent. The problems which confront the Administration are similar to those which have from time to time given serious concern to the Councils on Pharmacy and Chemistry and on Foods of the American Medical Association. The problem may not be a difficult one as far as it concerns foods used in infant feeding or for the diabetic or specifically in relationship to the reduction of weight. When, however, ordinary cereal products may be fortified with what are essentially medicinal doses of iron, calcium or vitamin D, questions are raised which may seriously affect not only the industries concerned in the production of such materials but the health of all the people.

No doubt all these considerations will be presented at the hearings which are to be held in Washington before the suggested findings of fact are issued and the regulations are finally promulgated as an established procedure. In the meantime, it is well to bear in mind the fact that the treatment of disease or of malnutrition with vitamins or mineral salts requires the same type of certainty as to dosage and certainty that the patient receives the materials given that scientific therapy has always demanded. It would be indeed unfortunate if commercial considerations should lead the pharmaceutical industry into the grocery store as an outlet for modern medicaments.

CONTRAINDICATIONS TO ESTROGEN THERAPY

Malignant growths of the mammary gland and the uterus have been induced in rodents with estrogens by numerous investigators. Some physicians, however, have doubted that the therapeutic administration of estrogens in the human being could result in the development of similar malignant growths. It has been pointed out that, theoretically, tremendous dosages of estrogens might be required to induce human cancer, when calculated according to body weight. Furthermore, the scarcity of reports in medical writings on the occurrence of malignant growths following estrogenic therapy has been considered evidence against this possible danger of estrogenic therapy.

No doubt estrogens have been used intensively for relatively too short a time to warrant the conclusion that mere absence of reports from the literature justified a disregard for the possible consequences of estrogenic

therapy. Recently two significant reports have appeared which should indicate the possible dangers of administration of estrogens. In this issue of *THE JOURNAL*, page 1517, is a report by Auchincloss and Haagenen on cancer of the breast possibly induced by estrogenic substance. The case reported is that of a woman with radiation castration, who had a mammary cancer following prolonged use of estrogens. In this case there was a familial history of carcinoma of the breast.

In a recent article, Gemmell and Jeffcoate¹ report that they have observed the appearance of carcinoma of the cervix in three patients among forty-three who were treated with estrogens for kraurosis vulvae and senile vaginitis. The authors state:

The occurrence of these three cases cannot prove that carcinoma cervicis may be caused by estrogens. But we hope that our experiences will bring the matter to the minds of gynecologists using such endocrine preparations so that similar cases, if they occur, may be reported. They at least point out some practical lessons:

1. Every patient of menopausal or postmenopausal age, presenting symptoms of discharge, should be subjected to the most careful investigation to exclude carcinoma of the uterus, even when some lesion such as senile vaginitis appears to be the obvious cause. . . .
2. Estrogens should be administered with caution if the patient has a lacerated or infected cervix or any other precancerous lesion.
3. Estrogens should probably not be administered to patients with a strong family history of malignant disease.

The Council on Pharmacy and Chemistry and *THE JOURNAL* have repeatedly warned against the indiscriminate and prolonged use of estrogens and have emphasized the possible occurrence of mammary carcinoma in patients who are susceptible to the development of such malignant growths. It would be unwise to consider that there is safety in using small doses of estrogens, since it is quite possible that the same harm may be obtained through the use of small doses of estrogen if they are maintained over a long period. While there appears little or no evidence to indicate that normal women may develop such malignant growths, it would be well for the physician to realize that this is by no means an impossibility in patients who have a personal or familial history of genital or mammary cancer. It has now become evident that a lacerated cervix may also be a contraindication to intensive estrogenic therapy.

Reports which have appeared are quite appropriate at the present time, as new potent estrogens, easily administered, are being prepared for therapeutic purposes. According to Lipschutz and Vargas,² the new synthetic estrogen diethylstilbestrol is far more active than the natural estrogens estrone and estradiol in the production of uterine and extra-uterine fibroids in

1. Gemmell, A. A., and Jeffcoate, T. N. A.: Estrogens and Carcinoma of the Uterus, *J. Obst. & Gynaec. Brit. Empire* 46: 955 (Dec.) 1939.

2. Lipschutz, Alexander, and Vargas, Luis: Tumorigenic Powers of Stilbestrol, *Lancet* 1: 541 (March 23) 1940.

Current Comment

MEDICINAL EXPORTS IN RECENT MONTHS

Under the international conditions existing at the present time there are few countries in which research, industry and commerce are proceeding normally. Where production is unhampered, business will be greatly accelerated by the concentration of demand to areas functioning in the normal manner. A case in point is the production and export of medicinals by the United States. Long enjoying a favorable position in this field, this country during December 1939 showed an increase of more than 50 per cent in the export of medicinals and pharmaceuticals over that in December 1938, according to the Chemical Division of the United States Bureau of Foreign and Domestic Commerce. An index of the rapid recent acceleration in this trade is provided by the high value of \$9,574,000 for the exports during the last four months of 1939, a 65 per cent increase over a similar period of the preceding year. Almost every country and trading area in the world has supported this peak level of foreign demand for American medicinal products (particularly biologic products and unbranded nonproprietarys) since the outbreak of hostilities in Europe.

HIRESTRA LABORATORIES VS. AMERICAN MEDICAL ASSOCIATION

THE JOURNAL published a critical editorial in the issue of April 9, 1938, on "Endocrine," a cosmetic containing the female sex hormone estradiol. On Aug. 18, 1938, the Hirestra Laboratories, Inc., the company which distributed and sold this face cream, filed two suits in the Federal Court at Chicago against the American Medical Association, the editor of THE JOURNAL, and others. One of the suits was in equity and asked for an injunction and damages on the theory that the defendants had conspired to injure the business of the plaintiff. The other suit was in law and asked damages of three million dollars on the theory that the defendants had libeled the plaintiff and had conspired to injure and destroy the business of the plaintiff (the Hirestra Laboratories). The suit in equity was referred to a federal Master in Chancery to hear evidence and report, together with his findings of fact, propositions of law and recommendations in the premises. In the proceedings before the Master in Chancery the plaintiff took the depositions of various witnesses throughout the United States and many witnesses appeared in person. Before the evidence of the plaintiff was concluded before the Master, and about the time the lawsuit was to come on for trial before the Federal Court and a jury, the plaintiff decided to dismiss voluntarily both of the suits. Accordingly, an order was entered on April 5, 1940, in both the suits dismissing them without costs to either party. There was no consideration paid and no promise given by the American Medical Association or the other defendants to induce the dismissal of these suits.

guinea pigs. There is no evidence, however, that it is more carcinogenic than these substances.

It is hoped that it will not be necessary for the appearance of numerous reports of estrogen-induced cancer to convince physicians that they should be exceedingly cautious in the administration of estrogens, which, used correctly, are apparently valuable therapeutic agents.

REORGANIZATION PLAN NO. IV

On April 11 President Roosevelt sent to the Congress Reorganization Plan No. IV, which consolidates certain federal agencies and activities. Certain sections of these proposals are of great interest to the medical profession, particularly as they represent an attempt to gather many widely distributed medical functions into a single agency, as recommended by the American Medical Association in its platform. Thus the President said:

Federal Security Agency: The Federal Security Agency has as its major purposes the promotion of social and economic security, educational opportunity, and the health of the citizens. The functions of St. Elizabeths Hospital, Freedmen's Hospital, Howard University, and Columbia Institution for the Deaf plainly come squarely within these purposes. Consequently, I find it necessary and desirable in pursuance of the objectives of the Reorganization Act to transfer to the Federal Security Agency the responsibilities of the Interior Department relating to these institutions. The work of St. Elizabeths Hospital and Freedmen's Hospital is much more akin to the activities of the Public Health Service in the Federal Security Agency than to those of any other Federal establishment. Similarly, Howard University and Columbia Institution for the Deaf can derive more benefit from association with the Office of Education in the Federal Security Agency than with any other Federal organization.

I further propose to transfer to the Federal Security Agency the Food and Drug Administration, with the exception of two activities intimately related to the work of the Department of Agriculture. The work of the Food and Drug Administration is unrelated to the basic functions of the Department of Agriculture. There was, however, no other agency to which these functions more appropriately belonged until the Federal Security Agency was created last year. I now believe that the opportunity for the Food and Drug Administration to develop along increasingly constructive lines lies in this new Agency. There is also need for coordination of certain of its functions with those of the Public Health Service. To accomplish these objectives the plan establishes the Administration as a separate unit within the Federal Security Agency.

In concluding his message the President pointed out that "the reorganization plans thus far submitted do not exhaust the transfers, consolidations, and abolitions that may be necessary and desirable." He pointed out also that the act expires on Jan. 20, 1941, and he strongly recommended the reenactment of the Reorganization Act without exemptions so that the structure and management of our government, like the activities and services it performs, might be kept abreast of social and economic change. Perhaps the President has in mind those functions of the Department of Labor particularly concerned with the welfare of mothers and children which belong far more appropriately with the United States Public Health Service.

ORGANIZATION SECTION

HOTEL RESERVATIONS FOR THE NEW YORK SESSION

Reservations for the annual session of the American Medical Association in New York are beginning to be received in large numbers. From advance information gathered at medical meetings and from members throughout the United States, the attendance at the New York session will probably surpass even the largest attendance ever recorded at a previous convention of the American Medical Association. The Housing Committee suggests that even though an American Medical Association convention has never been held in a city where so many hotel rooms are available, reser-

vations should be made immediately in order to get accommodations in the hotel desired and at the rate requested.

The low railroad rates as a result of the World's Fair will prove an added attraction and the special American Medical Association days designated by the New York World's Fair on Friday and Saturday, June 14 and 15, are another inducement for attendance at the 1940 convention.

Get your hotel reservations in immediately. See hotel list on page 36 of this issue (April 20).

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—The subcommittee of the Senate Committee on Education and Labor has ordered S. 3230, the Wagner-George hospital construction bill, reported to the full committee with amendments. The full committee, it is understood, will meet April 18 to act on the bill. S. 3633 has passed the Senate, providing that a candidate for appointment in the Dental Corps of the Army, to be eligible, must be a graduate of a recognized dental college, having been engaged in the practice of his profession for at least two years subsequent to graduation, or must have, after such graduation, satisfactorily completed a dental internship of not less than one year in a hospital or dispensary. S. 3654 has passed the Senate, proposing to amend the National Defense Act so as to provide that the authorized maximum number of enlisted men of the Medical Department of the Regular Army shall be in each fiscal year such number as shall equal 7 per cent of the average annual pay strength of the active list of the Regular Army and the average strength of all other military personnel on extended active duty with the Regular Army during such fiscal year.

Bills Introduced.—President Roosevelt, on April 11, submitted to the Congress Reorganization Plan No. IV. This plan proposes, among other things, to transfer to the Federal Security Agency the Food and Drug Administration, except those functions relating to the administration of the Insecticide Act of 1910 and the Naval Stores Act, which remain in the Department of Agriculture. The plan also proposes to transfer to the same Agency St. Elizabeths Hospital, Freedmen's Hospital, Howard University and Columbia Institution for the Deaf. S. 3728, introduced by Senator Johnson, California,

proposes that all persons who served in a civilian capacity under the jurisdiction of the Quartermaster General during the War with Spain, the Philippine Insurrection or the China Relief Expedition on vessels owned by the United States and engaged in the transportation of troops, supplies, ammunition or materials of war and who were discharged for disability incurred in such service shall be entitled to medical and hospital treatment and domiciliary care in Veterans' Administration facilities in the same manner and to the same extent as now or hereafter provided for veterans of any war.

DISTRICT OF COLUMBIA

Bill Introduced.—H. R. 9284, introduced by Representative Rayburn, Texas, provides for the issuance of a license to practice the healing art in the District of Columbia to Dr. A. L. Ridings, formerly of Sherman, Texas.

STATE MEDICAL LEGISLATION

Mississippi

Bill Passed.—H. 914 passed the House April 11, proposing to appropriate \$100,000 to the state board of health for the fiscal years 1940 and 1941 to conduct a program of eradication and control of venereal disease.

Bills Introduced.—H. Res. 32 proposes a minimum increase in the appropriation for hospitalization for the indigent sick for the 1940-1941 biennium of \$500,000 over the appropriation for the same purposes made for the 1938-1939 biennium. H. 816 proposes to establish a state charity hospital and nurse's home in north Mississippi in or near New Albany, Union County.

WOMAN'S AUXILIARY

California

An auxiliary to the Sonoma County Medical Society was organized November 16 and an auxiliary to the Kings County Medical Society December 11.

The November meeting of the auxiliary to the Alameda County Medical Association was held in Oakland. Mr. Elwood A. Stevenson, superintendent of the School for the Deaf, talked on "Educational Procedure with the Deaf Child."

The auxiliary to the Fresno County Medical Society raised \$40 to place subscriptions to *Hygeia* in public reading rooms in Fresno County.

Mrs. Rollo K. Packard, president of the auxiliary to the American Medical Association, was a guest of the auxiliary to the Los Angeles County Medical Association at a Christmas

tea at the home of Mrs. E. Erie Larson in Los Angeles December 19.

A joint meeting of the auxiliaries to the Monterey and the San Benito county medical societies was held in Salinas December 7. A program was presented on *Hygeia* and the subjects selected from the magazine were the history of blood transfusions, the history of treatment for cholera, and environment and heredity.

Iowa

The auxiliary to the Dallas-Guthrie County Medical Society met in Adel January 18. A paper on "Mental Hygiene" was read by Mrs. Elwyn Butterfield.

At the January meeting of the auxiliary to the Madison County Medical Society members voted to place *Hygeia* in

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the Truro and St. Charles schools. A paper on "Mental Hygiene" was read by Drs. J. F. Veltman. Mrs. E. A. Hanske, president of the auxiliary to the Iowa State Medical Society, spoke on "The Functions of the Auxiliary" at a meeting of the auxiliary to the Pottawattamie County Medical Society in Council Bluffs January 16. The auxiliary to the Woodbury County Medical Society entertained the wives of the doctors attending the two day meeting of the Sioux Valley Medical Association in Sioux City, January 17-18.

South Dakota

The South Dakota Medical Auxiliary will celebrate its thirtieth anniversary at Watertown, May 21-22, at the time the state medical association holds its annual meeting. The South Dakota Medical Auxiliary was organized Sept. 29, 1910. Mrs. R. D. Jennings, Hot Springs, S. D., the first president, still resides in Hot Springs. Membership in 1910 was eighteen; in 1939 membership was 134. All the doctors' wives in the state are cordially invited to the anniversary meeting in Watertown, May 21 and 22. The program for the year is as follows:

1. Organizing new districts.
 2. Promoting health education by means of *Hygeia* and the study of state health laws cooperating with the parent-teachers associations and other women's organizations.
 3. Studying the lives of distinguished men and women in medical work.
 4. Observing Doctors' Day.
 5. Donations for the Medical Benevolence Fund.
 6. Cooperation with the A. M. A. in promoting the medical radio programs.
- At a meeting of the fourth district medical auxiliary at the home of Mrs. Ola Stout, Pierre, March 15, Mrs. B. M. Hart,

Onida, was elected president; Mrs. I. R. Salliday, Pierre, vice president, and Mrs. M. M. Morrissey, Pierre, secretary-treasurer.

Tennessee

Dr. L. W. Edwards, chairman of the Committee on Public Policy and Legislation, Tennessee State Medical Association, spoke on the Wagner Bill at the January meeting of the auxiliary to the Nashville Academy of Medicine and Davidson County Medical Society. The auxiliary sponsored a program given at the Woman's Civic Forum recently; Dr. Willis H. Thompson spoke on "The Children's Charter." At a meeting of the auxiliary to the Stones River Academy of Medicine, Murfreesboro, Mrs. Earl Roberts read a paper on "Some Medical References in Shakespeare."

Wisconsin

At a meeting of the auxiliary to the Columbia-Marquette-Adams County Medical Society the booklet, "The Doctor's Wife," by Dr. Rock Sleyster, was read. At the December meeting of the auxiliary to the Dane County Medical Society in Madison Mr. Alfred Ingersoll spoke on his experiences with the youth groups in Germany, France, Belgium and Holland. Mr. Phil Grau spoke on "What's Behind the News?" at an evening meeting of the auxiliary to the Milwaukee County Medical Society in Milwaukee February 12. Dr. William A. O'Brien, of the University of Minnesota, spoke on "Socialized Medicine" at a meeting of the auxiliary to the Polk County Medical Society in Osceola December 14. Dr. J. W. McRoberts spoke on the life of Sir William Osler at the January meeting of the auxiliary to the Sheboygan County Medical Society in Sheboygan. Members of the auxiliary have raised funds to place *Hygeia* in the schools of Sheboygan County.

MEDICAL ECONOMIC ABSTRACTS

ERRORS IN INFANT MORTALITY RATES

The rate of infant mortality is usually given as the number of deaths under 1 year per thousand live births. In any ratio such as this, inaccuracy in the number either of births or of deaths reported has an important effect on the ratio. A study by the Bureau of the Census, November 10, on "Birth Test Surveys," covering samples of counties in Georgia and one county in Maryland, shows that in certain classes of the population in Georgia only from 50 to 84 per cent of the actual births were registered. Even in the classes having what is designated as "superior registration," which includes those in large cities, hospitalized, attended by a physician, the more intelligent and the well-to-do, the percentage of births registered was between 83 and 98, the latter figure applying only to hospitalized births.

The study does not attempt to estimate the extent to which incomplete birth registration prevailed or to give any average figure which might be applied to the entire state. It is evident however that, if the conditions shown in twenty-six Georgia counties does represent a fair sample, the average of registered births would be not far from 80 per cent. In other words, it would appear that the figures given for infant mortality in the state of Georgia were not the "deaths under 1 year per thousand live births" but rather the deaths in about 1,200 live births.

It is unsafe to assume that any such conditions exist uniformly throughout the United States or in states with well organized health departments, long established systems of registration, higher economic conditions and more extensive hospitalization. However, it is true that the highest recorded infant death rates are found in just the states where the conditions that accompany imperfect registration are most common. It is not suggested that the variations in published infant mortality rates are due entirely or even principally to statistical defects. It is, however, certain that the recorded infant mortality rate would be reduced by complete birth registration. It is even possible that such an administrative and statistical change might

produce greater improvements in this particular type of vital statistics than some of the schemes that are urged for the provision of medical care.

REHABILITATION IN WEST VIRGINIA

A description of the plan originated by the West Virginia State Medical Association, in cooperation with the Department of Public Assistance, for rehabilitation of the "unemployable" on the public relief rolls was given in a previous issue of THE JOURNAL.¹

The progress in the current year has extended the scope of the plan.² The program was proceeding so well that its provisions were written into a new West Virginia Public Assistance Law. This legislation instituted a program which got under way as a regularly established service Feb. 1, 1937. A committee of the state medical association, in cooperation with the Department of Public Assistance, approved the physicians qualified to perform the necessary surgery and prosthetic work. Up to June 1939 physical rehabilitation under this program was provided for 3,420 persons suffering from twenty-six different kinds of handicaps—these ranged all the way from bad teeth to hernia.

During this period \$306,029.42 was expended for the following items:

Surgery fees	\$123,365.98
Hospital fees	134,680.15
Prosthetic appliances	47,983.29

The average cost per case was \$92.54. Of the 3,420 persons physically rehabilitated 2,664, or 77.9 per cent of the total, were returned to employment. The number able to return to employment but not employed June 30, 1939, was 756, or 22.1 per cent of the total. The records show that 1,882, or 70.6 per cent of the persons rehabilitated, were placed in private employment; 740, or 27.8 per cent with the WPA, fifteen, or 0.6 per cent with the NYA, and twenty-seven, or 1 per cent, with the CCC.

It is estimated that this rehabilitation program saved \$900,000 which would otherwise have had to be spent for general relief.

1. West Virginia's Adult Physical Rehabilitation Program, J. A. M. A. 111:1105 (Sept. 17) 1938.
2. Power, F. Ray: Implications for Vocational Rehabilitation Foundation in Recent Legislation Concerning Physical Restoration, National Rehabilitation News 5:2 (Feb.) 1940.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

The George Dock Lectureship Created.—The Walter Jarvis Barlow Society of the History of Medicine has created a lectureship in honor of Dr. George Dock, since 1932 honorary professor of medicine, University of Southern California School of Medicine, Los Angeles. Dr. Dock presented the first lecture at a dinner observing his eightieth birthday, April 2. His subject was "A Dictionary of Medical Biography." Dr. Dock graduated at the University of Pennsylvania School of Medicine, Philadelphia, in 1884. He has served on the staffs of his alma mater, University of Texas Medical Department, Galveston, University of Michigan Medical School, Ann Arbor, Tulane University of Louisiana School of Medicine, New Orleans, and Washington University School of Medicine, St. Louis. He was a member of the California State Board of Medical Examiners from 1930 to 1932 and president of the Association of American Physicians, 1916-1917.

FLORIDA

State Medical Meeting in Tampa.—The sixty-seventh annual meeting of the Florida Medical Association will be held at the Tampa Terrace Hotel and the Chamber of Commerce Building, Tampa, April 29-May 1, under the presidency of Dr. Leigh F. Robinson, Fort Lauderdale. The speakers will include:

- Dr. Warren W. Quillian, Coral Gables, Infection of Nasal Accessory Sinuses in Childhood.
- Dr. Ludo von Meysenbug, Daytona Beach, Management of the Breast Fed Baby, Including Immunization Procedures.
- Drs. Hermon Marshall Taylor, Lucien Y. Dyrenforth, Jacksonville, and Cash B. Pollard, Ph.D., Gainesville, Absorption of Quinine into the Cerebrospinal Fluid of the Fetus in Utero.
- Dr. Henry E. Palmer, Tallahassee, Impetigo Contagiosa Complicated by Hemorrhagic Nephritis.
- Dr. Edwin Laurence Scott, Ocala, The Medical Man and the Workmen's Compensation Law.
- Dr. Donald Paul Bird, Lakeland, A Consideration of Climate and Altitude in the Treatment of Hypertension and Myocardial Failure.
- Dr. John W. Snyder, Miami, Chronic Empyema.
- Drs. Lawrence H. Kingsbury and William O. Fowler, Orlando, Thoracoplasty Program at the Florida Tuberculosis Sanatorium; Preliminary Report.
- Drs. Louis M. Orr and Palmer R. Kundert, Orlando, Therapeutic Evaluation in Cases of Cryptorchidism.
- Dr. Claude G. Mentzer, Miami, Metocaine as a Caudal Anesthetic in Proctologic Surgery; Report of 100 Cases.
- Dr. James G. Lyerly, Jacksonville, The Syndrome of the Dislocated Intervertebral Disk.
- Dr. Alan D. Brown, Jacksonville, Experimental Atabrine Therapy in Granuloma Inguinale.
- Dr. Albert B. McCreary, Jacksonville, Medicine, Public Health and Local Government.
- Dr. Nelson M. Black, Miami, Compensation in Industrial Ophthalmology.
- Dr. Alfred G. Levin, Miami, Role of X-Ray Therapy in Nonmalignant Disease.

Dr. Byrl R. Kirklin, Rochester, Minn., will address one session on "Bleeding Lesions of the Gastrointestinal Tract." A symposium on heart disease will be presented by Drs. Roscoe H. Knowlton, St. Petersburg; Turner Z. Cason, Jacksonville, and Edward Sterling Nichol, Miami. Other societies meeting at this time include the Florida Railway Surgeons Association, Florida Pediatric Society, Florida Radiological Society, Florida Internists' Society, Florida Society of Dermatology and Syphilology, Florida Society of Ophthalmology and Otolaryngology, Florida Association of Industrial Surgeons and the health officers' section of the Florida Public Health Association.

IOWA

State Medical Meeting in Des Moines.—The eighty-ninth annual session of the Iowa State Medical Society will be at the Hotel Fort Des Moines, Des Moines, May 1-3, under the presidency of Dr. Felix A. Hennessy, Calmar. General sessions will be addressed by:

- Dr. Wyman C. C. Cole, Detroit, Etiology and Significance of Asphyxia of the Newborn.
- Dr. Arthur E. Hertzler, Halstead, Kan., Principles of Peritoneal Drainage.
- Dr. John DeJ. Pemberton, Rochester, Minn., Present Status of Surgery of the Spleen.

- Dr. Albert M. Snell, Rochester, Minn., Deficiency States and Their Treatment.
- Dr. Marvin F. Jones, New York, Trouble Shooting.
- Dr. Alphonse McMahon, St. Louis, subject not announced.

The guest speakers will also participate with Iowa physicians in the sectional conferences which make up the program Wednesday and Thursday afternoons. Dr. Hans Brunner, Chicago, will conduct a clinic before the eye, ear, nose and throat section Thursday morning. A smoker will be held Wednesday evening and the annual banquet Thursday evening. Other societies meeting during this time will include the State Society of Iowa Medical Women, May 1, under the presidency of Dr. Gail A. McClure, Ames, and the Iowa State Pediatric Society, April 30. Included among the speakers at the latter meeting will be Dr. Aladar Farkas, Budapest, Hungary, visiting professor of orthopedics, State University of Iowa College of Medicine, Iowa City, whose subject will be "Pathogenesis of Scoliosis in Children." The woman's auxiliary to the state medical society will hold its eleventh annual meeting at the Hotel Savery, May 1.

LOUISIANA

State Medical Meeting in New Orleans.—The sixty-first annual meeting of the Louisiana State Medical Society will be held at the Roosevelt Hotel, New Orleans, April 22-24, under the presidency of Dr. Dorman B. Barber, Alexandria. Out of state speakers will include:

- Dr. Wendell McLean Long, Oklahoma City, Uterine Bleeding.
- Dr. Byrl R. Kirklin, Rochester, Minn., Solving Problems in the Diagnosis of Diseases of the Lungs.
- Dr. Howard K. Gray, Rochester, Significance and Surgical Treatment of Ulcerating Lesions of the Stomach.

Annual orations will be delivered by Governor-Elect Sam Houston Jones, Lake Charles, and Dr. Rudolph Matas, New Orleans. Louisiana physicians on the general program will include:

- Dr. John H. Musser, New Orleans, Typhus Fever in Louisiana.
- Dr. Eugene M. Robards Jr., Jackson, Estrogenic Hormone Therapy in the Treatment of Presenile and Manic Depressive Psychosis.
- Dr. Edmund M. Connelly, New Orleans, Present Status of Therapeutic Shock in Psychiatry.
- Drs. Daniel N. Silverman and Roy J. St. Martin, New Orleans, Early Diagnosis and Treatment of Amebic Abscess of the Liver.
- Dr. Lucian W. Alexander, New Orleans, A Preliminary Report of the Use of Prostigmine Methylsulfate in Deafness.
- Drs. Edward William Alton Ochsner and Michael E. DeBakey, New Orleans, Carcinoma of the Lung.

The Louisiana State Pediatric Society will hold its twelfth annual meeting at the Roosevelt Hotel, April 22, under the presidency of Dr. Philip C. DeVerges, New Orleans. Dr. Julius Bauer, clinical professor of medicine, Louisiana State University School of Medicine, New Orleans, will speak on "Obesity in Childhood." At the evening session Dr. Bauer will discuss "Pseudo-Endocrine versus Endocrine Conditions in Childhood." Other societies meeting during the annual session of the state medical society include the Louisiana Gynecological and Obstetrical Society, the Louisiana Coroners' Association, the Louisiana branch of the National Gastro-Enterology Society and the Louisiana-Mississippi Ophthalmological and Otolaryngological Society. There will also be a meeting of the regional fracture committee of the American College of Surgeons.

MASSACHUSETTS

Psychiatric Meeting.—The annual session of the New England Society of Psychiatry will be held at the Danvers State Hospital, Hathorne, April 25, under the presidency of Dr. Charles H. Dolloff, Concord, N. H. The speaker will be Dr. Moses Ralph Kaufman, Boston, and his subject, "Factors in Psychotherapy: A Psychoanalytic Evaluation."

Course on Industrial Medicine.—The Harvard University School of Public Health, Boston, is sponsoring a course in industrial medicine to be held in May. Clinics, lectures and plant visits will cover various aspects of industrial medicine and surgery. Additional information may be obtained from Dr. Cecil K. Drinker, dean of the Harvard School of Public Health, 55 Shattuck Street, Boston.

MINNESOTA

Annual Lecture on Cancer.—John J. Bittner, Ph.D., of the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine, will deliver the annual George Chase Christian Lecture of the Cancer Institute of the University of Minnesota, Minneapolis, April 30. His subject will be "Breast Cancer as Influenced by Nursing."

Society News.—Dr. Joseph Brennemann, Chicago, addressed the Hennepin County Medical Society in Minneapolis, April 1, on acute conditions of the abdomen in the child.—The Minneapolis Surgical Society was addressed, April 4, among others, by Drs. Arthur F. Bratrud on "Meckel's Diverticulum Con- taining Pancreatic Tissue" and Frederick A. Olson, "Avulsion of the Insertion of the Biceps Brachii Tendon."—Dr. Moses Barron, Minneapolis, discussed "Some Uses of Sulfamidopyri- dine Preparations in the Treatment of Infectious Diseases" before the Minnesota Academy of Medicine in St. Paul, April 10, and Dr. Robert G. Green, Minneapolis, "Modifications of Viruses for Vaccines."—René J. Dubos, Ph.D., Rockefeller Institute for Medical Research, New York, gave a Mayo Foundation lecture, April 8, on "Studies on the Protective Substances Elaborated by the Soil Bacillus."

MISSOURI

State Medical Meeting in Joplin.—The eighty-third annual session of the Missouri State Medical Association will be held at the Hotel Connor, Joplin, April 29-May 1, under the presidency of Dr. James R. McVay, Kansas City. The Jasper County Medical Society will be host. Out of state speakers will include:

- Dr. Heyworth N. Sanford, Chicago, Studies in Blood Coagulation Dis- turbances.
- Dr. John W. Harris, Madison, Wis., Pain Relief in Labor.
- Dr. Louis A. Buie, Rochester, Minn., Office and Hospital Manage- ment of Some Anorectal Disorders.
- Dr. Cyrus C. Sturgis, Ann Arbor, Mich., Prognosis and Treatment of Hypertension.
- Dr. Alfred I. Folsom, Dallas, Texas, The Role of the Female Urethra in Bladder Irritation in Women.
- Dr. Joseph W. Gale, Madison, Wis., Acute Suppurative Pleurisy.
- Dr. Everett D. Plass, Iowa City, Functional Menstrual Disturbances.
- Dr. George W. Post, Chicago, Importance of Water Balance and the Electrolytes in the Preoperative and Postoperative Care of Surgical Patients.
- Dr. John H. Musser, New Orleans, Treatment of Some of the Con- tagious Diseases.

A dinner in honor of past presidents of the association will be held Monday evening. Dr. Nathan B. Van Etten, New York, President-Elect, American Medical Association, will be the speaker; his subject will be "An American Health Pro- gram." A round table discussion on "Problems in the Practice of Medicine" will be a feature of the dinner meeting. A round table luncheon will be held Tuesday with Dr. Gale discussing surgery; Dr. Sturgis, internal medicine; and Dr. Folsom, urology. One on Wednesday will be addressed by Dr. Post on surgery; Dr. Musser, internal medicine; Dr. Plass, obstet- rics and gynecology; and Dr. John Aull, Kansas City, pedi- atrics. On the first day of the annual meeting the maternal welfare committee will hold a special session with Dr. Harris presenting a "Critique of Report of Maternal Death and Dis- cussion of Submitted Questions."

NEVADA

Annual Registration Due May 1.—All persons holding licenses to practice medicine in Nevada are required by law to pay annually to the treasurer of the board of medical exam- iners, on or before May 1, a tax of \$2. Failure to do so operates to forfeit a licentiate's right to practice medicine, and his license to practice can be reinstated thereafter only on the payment of a \$10 penalty.

NEW YORK

Anatomist Goes to Carnegie Laboratory.—Robert K. Burns Jr., Ph.D., associate professor of anatomy at the Uni- versity of Rochester School of Medicine and Dentistry, Roch- ester, has been appointed research professor on the staff of the embryology laboratory of the Carnegie Institution of Wash- ington. The laboratory is in Baltimore. Dr. Burns took his doctorate at Yale University in 1924 and taught at the Uni- versity of Cincinnati before joining the Rochester faculty. Dr. George W. Corner, professor of anatomy and curator of the medical library at Rochester, was recently appointed direc- tor of the Carnegie laboratory. He and Dr. Burns will assume the new positions in July.

New York City

Chemist Honored for Research on Enzymes.—John M. Nelson, Ph.D., professor of chemistry at Columbia University since 1920, received the William H. Nichols Medal of the New York section of the American Chemical Society at a meeting March 8. Dr. Nelson was cited as an "internationally recog- nized authority on the isolation and purification of naturally occurring enzymes and the quantitative study of their modes of action."

Ledyard Fellowships Awarded.—Two fellowships, one for 1939 and one for 1940, have been awarded by the New York Hospital from a fund established by Mrs. Ruth E. Ledyard in memory of her husband, the late Lewis Cass Ledyard Jr., a governor of her husband, the late Lewis Cass to Dr. Willis Fiske Evans, Richmond, Va., for research on the peripheral blood flow and Dr. Charles O. Warren Jr., Boston, to continue research on the physiology of the bone marrow. Both are currently working at Cornell University Medical College.

Alumni Day at Long Island College.—Alumni Day will be observed at Long Island College of Medicine on April 27. Round table discussion will be held on anatomy, chemistry, obstetrics and gynecology, pathology, pediatrics, physiology, surgery, radiology and gastro-enterology. The program also includes a symposium on pneumonia. At the luncheon Dr. Henry M. Moses, colonel, medical reserve corps, U. S. Army, among others, will discuss "The Medical Profession in a National Emergency." The annual banquet will be addressed by Dr. Frank L. Babbott, president, Long Island College of Medicine, and Dr. Dallas G. Sutton, captain, medical corps, U. S. Navy.

Dr. Emerson to Retire from DeLamar Institute.—Dr. Harry Stoll Mustard, Hermann M. Biggs professor of preventive medicine, New York University College of Medi- cine, has been appointed director of the DeLamar Institute of Public Health at Columbia University to succeed Dr. Haven Emerson, who plans to retire July 1. Dr. Mustard will also be professor of public health practice. Dr. Mustard has served on the faculty of the Medical College of South Carolina, where he graduated in 1911; as health officer of Preston County, W. Va.; assistant commissioner of health of Tennessee; asso- ciate professor of public health administration, Johns Hopkins University School of Hygiene and Public Health, Baltimore, and lecturer in the school of medicine. Dr. Mustard also served as chief medical officer of the Muscle Shoals Sanitary District and executive officer of the department of sanitation, Emergency Fleet Corporation. He has been at New York University since 1937. He is 51 years of age and a native of Charleston, S. C. He is a member of the board of scientific directors of the International Health Division of the Rocke- feller Foundation and of the public health committee of the Commonwealth Fund. Born in New York, Dr. Emerson graduated at Columbia University College of Physicians and Surgeons in 1899. He was a member of the teaching faculty of his alma mater from 1902 to 1914; president of the board of health and commissioner of the city department of health from 1915 to 1917 and professor of preventive medicine at Cornell University Medical College 1920-1921. He has been professor of public health administration at Columbia since 1922. Dr. Emerson is well known for his direction of health and hospital surveys. He is a member of the National Advisory Health Council of the U. S. Public Health Service and a past president of the American Public Health Association. He is 65 years of age.

OHIO

Society News.—Dr. Elmer L. Sevringhaus, Madison, Wis., addressed the Columbus Academy of Medicine, March 18, on "Endocrine Therapy in General Practice."—Dr. Ira D. Bax- ter, Lima, addressed the Logan County Medical Society, Belle- fontaine, March 1, on surgical conditions of childhood.—Dr. Samuel Iglauer, Cincinnati, addressed the Belle- fontaine Academy of Medicine, March 11, on "Bronchoscopy and Esophagoscopy."—Dr. Samuel L. Siegler, Brooklyn, addressed a special meeting of the Stark County Medical Society, Canton, recently on "Pregnant Mare Serum for Treatment of Ovarian and Testicular Dysfunction."

Practitioner Honored.—The Tuscarawas County Medical Society gave a dinner, March 6, at Uhrichsville, in honor of Dr. James A. McCollam, who has practiced fifty years in the town. Among speakers who paid tribute to Dr. McCollam were Drs. Glenn I. Goodrich, Dover, president of the county society; Jay W. Calhoon, Uhrichsville; Jonathan Forman, Columbus, editor of the *Ohio State Medical Journal*, and Mr. Charles S. Nelson, executive secretary of the Ohio State Medical Association. The society presented to Dr. McCollam a book containing autographs of most of the physicians in the county. Dr. McCollam has served as president of the county society. He was the first health commissioner of the county according to the *Dover Reporter*, and has been active in religious and civic affairs. He graduated from the old Starling Medical College, Columbus, in 1890.

OKLAHOMA

Pneumonia Control Program.—Laboratory service, serums and sulfapyridine have recently been made available to Tulsa and Oklahoma City through the cooperation of the Tulsa and Oklahoma county medical societies, the state health department and the department of bacteriology of the University of Oklahoma School of Medicine. The facilities have been furnished free to those unable to pay for them and unable to obtain them elsewhere.

PENNSYLVANIA

Society News.—Dr. William W. G. MacLachlan, Pittsburgh, discussed treatment of pneumonia at a meeting of the Fayette County Medical Society, Uniontown, April 4. —A discussion of "Geriatrics" featured a meeting of the Shenandoah Medical Society, March 11, with the following speakers: Drs. John S. Monahan, Saul Supowitz, Stanley W. Stanulonis and Elinor M. Langton, Shenandoah; Peter J. Kapo and Roland F. Fleck, Mahanoy City. —Dr. William Bates, Philadelphia, addressed the Northampton County Medical Society, Easton, March 15, on "Parietal Versus Visceral Pain and Tenderness."

Pittsburgh

Annual Surgical Meeting.—Drs. Kellogg Speed, Chicago, and Robert M. Zollinger, Boston, will be guest speakers at the annual meeting of the Pittsburgh Surgical Society, April 25, on "Injuries of the Carpal Bones" and "Surgical Treatment of Gastric and Duodenal Ulcers" respectively. The meeting will be preceded by a banquet in honor of the guest speakers.

RHODE ISLAND

Personal.—Dr. William Hindle, Providence, has been appointed superintendent of the Charles V. Chapin Hospital, Providence, to succeed Dr. Dennett L. Richardson, who recently became superintendent of the Rhode Island Hospital.

Society News.—Dr. Burton E. Hamilton, Boston, addressed the Providence Medical Association, April 1, on "Heart Disease in Pregnancy." Dr. Frederick C. Irving, Boston, discussed the paper. Dr. Samuel F. Marshall, Boston, addressed the association, March 4, on "Management of Peptic Ulcer and Its Surgical Aspects."

TENNESSEE

Meetings of Specialists.—The Tennessee Academy of Ophthalmology and Otolaryngology held its annual meeting in Chattanooga, April 9, in conjunction with the annual meeting of the Tennessee State Medical Association. Guest speakers were Drs. Harry S. Gradle, Chicago, on "Secondary Glaucoma" and Albert C. Furstenberg, Ann Arbor, Mich., "Acute Infections of the Mouth, Pharynx, Cervical Region and Mediastinum." —The Tennessee State Pediatric Society held its annual meeting April 9. Guest speakers included Drs. Harry S. Andrews, Louisville, Ky., on "Laryngotracheobronchitis"; Willis H. Thompson, Minneapolis, "Vitamin K and Prothrombin Deficiency in the Newborn," and Mynie G. Peterman, Milwaukee, who addressed a joint meeting with the state medical association on "Convulsions in Children and Their Etiology and Treatment."

TEXAS

Society News.—Dr. James K. Howles, New Orleans, addressed the Jefferson County Medical Society, Port Arthur, recently on "Diagnosis and Treatment of Syphilis." —Drs. Elmer R. Hayes and Orman H. Trimble, Greenville, addressed the Hunt-Rockwall-Rains Counties Medical Society recently on "Differential Diagnosis in Jaundice" and "Leukemia" respectively.

Physicians Honored for Charity Service.—Mr. Ben Taub, chairman of the board of directors of Jefferson Davis Hospital, Houston, recently gave a dinner in honor of seven physicians who have served the clinics of the charity hospital for the past two decades, marking their retirement from an active to an honorary status. The physicians were Drs. Leonardo Allen, Joseph Allen Kyle, John Mark O'Farrell, John T. Moore, Scelely T. Pulliam, Martin J. Taylor and Elva A. Wright. Each received an inscribed key.

Waco Opens City Hospital.—A hospital to care for indigent patients was opened in Waco recently under the auspices of the city and the McLennan County Medical Society. With a charitable bequest, the city bought the former Colgin hospital and clinic building for \$45,000 and spent about \$12,000 for

repairs and equipment, it is reported. The medical society will staff the new hospital, taking turns in the clinics and on the ten medical services. The first floor will be used for clinics; the second will be devoted to the surgical department, isolation ward and a ward for Negroes, and the third floor has accommodations for white patients, with twenty-five beds.

WISCONSIN

The William Snow Miller Lecture.—Dr. Esmond R. Long, director of the Henry Phipps Institute, University of Pennsylvania, Philadelphia, delivered the thirteenth annual William Snow Miller Lecture at the University of Wisconsin, Madison, March 25, under the auspices of Phi Beta Pi. Dr. Long's subject was "The Decline of Tuberculosis with Special Reference to Its Generalized Form."

Personal.—Citizens of Ashland held a testimonial dinner recently for Dr. John M. Dodd Sr., who has practiced in the town for many years. Dr. Dodd was the first secretary of the Ashland County Medical Society, a councilor of the state medical society from 1903 to 1930, a member of the state board of medical examiners from 1913 to 1924 and president of the state society in 1912. He received the council award of the state society in 1930.

Society News.—Dr. Archibald L. Hoyne, Chicago, addressed the Dane County Medical Society, Madison, March 12, on "Significant Signs in Contagious Diseases." —Mrs. Malcolm M. Hargraves and Fred Z. Havens, Rochester, Minn., addressed the Chippewa County Medical Society, Chippewa Falls, March 12, on "The Practical Relationship of Hematology to Internal Medicine" and "Treatment of Cancer of Face, Lips and Oral Cavity" respectively. —Dr. Richard Bardon, Duluth, Minn., addressed the Douglas County Medical Society, Superior, March 6, on "Ulcerated Colitis." —Dr. Edward L. Tharinger, Milwaukee, addressed the Washington-Ozaukee Counties Medical Society, West Bend, recently on "Criminology and the Doctor." —A program on tuberculosis was presented at a meeting of the Racine County Medical Society, Racine, March 21, by Drs. Cornelius A. Harper, Madison, state health officer; Arthur A. Pleyte, Milwaukee; George N. Gillett and Carl O. Schaefer, Racine. —Dr. Nathan S. Davis III, Chicago, addressed the Rock County Medical Society, Beloit, recently on "Can the Government Render Efficient and Satisfactory Medical Service?"

PUERTO RICO

Health Department Opens Children's Home.—The department of health of Puerto Rico inaugurated its new Rafael Martinez Nadal Insular Home for Children at Guaynabo, March 3. The new school, which accommodates about 400 children, has modern vocational education facilities.

University News.—Magnus I. Gregersen, Ph.D., New York, gave an address at the School of Tropical Medicine, University of Puerto Rico, San Juan, February 29, on "The Relations of Thirst to Salt and Water Balance." Drs. Juan A. Pons and Thomas D. Slagle, San Juan, spoke at the seminar, February 8, on thyroid disease in Puerto Rico.

GENERAL

American Pediatric Society.—The fifty-second annual meeting of the American Pediatric Society will be held at Skytop, Pa., May 2-4, under the presidency of Dr. Herbert B. Wilcox, New York. Among the speakers will be:

Dr. Randolph K. Byers, Boston, Certain Reactions of Children with Head Injuries.
Dr. George M. Guest and S. Rapoport, Cincinnati, Studies of Acid-Soluble Phosphorus Compounds of Red Blood Cells in Diabetic Acidosis.
Dr. Alexis F. Hartmann, St. Louis, and Miss Anne M. Perley, Observations on Sulfamethylthiazole.
Drs. Alfred T. Shohl, Kenneth D. Blackfan and Harold L. Higgins, Boston, Studies of Amino Acids.
Dr. Henry F. Helmholz, Rochester, Minn., Differential Bactericidal Effects of Various Urinary Antiseptics.

Pan American Conference of Health Directors.—The fourth Pan American Conference of National Directors of Health will be held in Washington, D. C., May 1-8, according to an announcement from Surgeon General (Ret.) Hugh S. Cumming, director of the Pan American Sanitary Bureau. Subjects to be discussed are: serology of syphilis, public health personnel, use of vital statistics from a public health standpoint, preparation of a sanitary code to serve as a model for various countries, preparation of appraisal tests from the point of view of the Americas, housing in rural and urban

districts, mental hygiene, typhoid control, industrial hygiene, undulant fever, poliomyelitis and Chagas' disease. It is expected that about fifty delegates will be present.

Air Lines Complete Year Without an Accident.—Commercial air lines of the United States completed a full year without a fatal accident or serious injury to passenger or crew, it was announced March 27. The last fatal accident took place March 26 at Oklahoma City, it was said. The nineteen domestic air lines flew a total of 87,500,000 miles in the twelve months period. More miles were flown, more planes used, more passengers and mail carried and more scheduled trips completed than in any other year in the history of commercial aviation in the United States. Credit was given to the Civil Aeronautics Authority as well as to the air lines for its insistence on safety precautions.

National Academy of Sciences.—The annual meeting of the National Academy of Sciences will be held in Washington, D. C., April 22-23. Among the speakers will be:

Dr. Aleš Hrdlička, Washington, D. C., Anthropologic Relations Between Siberia and America.
George B. Kistiakowsky, Ph.D., and Richard D. Cramer, A.M., Cambridge, Mass., A Synthesis of Radioactive Lactic Acid.
Dr. George A. Schumacher, Harold G. Wolf and Helen Goodell, New York, Studies in Pain Sensitivity.
Ernest O. Lawrence, Ph.D., Berkeley, Calif., Bombarding Atoms.
Yandell Henderson, Ph.D., New Haven, Conn., The Control of Respiration Under Artificial Respiration.
Louis O. Kunkel, Ph.D., Princeton, N. J., A New Group of Filtrable Saprophytes.
Dr. William G. MacCallum, Baltimore, Viruses and Their Part in Disease.
Harold C. Urey, Ph.D., New York, Chemical Separation of Isotopes.

Academy of Physical Medicine.—The eighteenth annual session of the Academy of Physical Medicine will be held at Richmond, Va., April 24-26, under the presidency of Dr. Harold D. Corbusier, Plainfield, N. J. Hotel headquarters will be at the John Marshall and demonstrations and clinics will be held at the Academy of Medicine Building. Brig. Gen. Frank T. Hines, chief, U. S. Veterans' Administration, will be the speaker at the annual banquet. The speakers on the scientific program will include:

Dr. Chevalier L. Jackson, Philadelphia, Mechanical Humidification as a Therapeutic Measure in Acute Respiratory Infections.
Dr. Frederick A. D. Alexander, Albany, N. Y., Nitrogen Inhalation Therapy for Schizophrenia—A Comparison with Other Methods.
Dr. John S. Coulter, Chicago, Physical Medicine in Medical Education.
Howard Carter, B.S., M.E., Chicago, Activities of the Council on Physical Therapy of the American Medical Association.
Milton Harris, Ph.D., Washington, D. C., Studies in the Chemistry of Keratin.
Dr. Gustav Bucky, New York, Problems of Superficial Radiation Therapy.

Medical Stores Bought by Red Cross for War Relief.—Medicines and hospital and surgical supplies loom large in American Red Cross war relief purchases, according to a recent tabulation of articles which that organization is furnishing its sister societies in war-affected countries to assist them in minimizing the sufferings consequent to hostilities. Analysis of the tabulation, dated April 1, reveals the following purchases:

500,000 tablets of sulfanilamide
266,000 tablets of sulfapyridine
100 tons of other assorted drugs
23,000 surgical instruments
38 x-ray units
32 generating motors for x-ray units
1 100 bed hospital unit, containing 700 items
25 hospital tents each of fifty patient capacity
11 motor ambulances
1,500,000 yards of surgical gauze
92,000 pounds of absorbent cotton for medical purposes
276,000 yards of bed sheeting and large quantities of soap, toothbrushes and other similar products

Purchases for relief also included 120,000 blankets, 105,000 suits of knitted underwear, 45,000 pairs of shoes and various other articles of clothing. In addition, women volunteers in Red Cross chapters all over the country have produced 344,000 garments and 500,000 surgical dressings. These are sent to the Red Cross warehouse in New York, where they are packed and shipped to the various Red Cross societies in the nine European countries currently receiving assistance. These are Finland, German-occupied Poland, France, England, Latvia, Lithuania, Rumania, Hungary and Yugoslavia. The latter five countries harbor some 122,000 Polish soldiers and civilians who sought refuge there last September. American Red Cross relief operations in Europe are under the supervision of a commission of two men, James T. Nicholson, from national headquarters, Washington, and Wayne Chatfield-Taylor, former Assistant Secretary of the Treasury. With central offices at

Geneva, they are in a position to visit the various relief fronts and personally supervise distribution of supplies and ascertain future needs.

Eighth American Scientific Congress.—As a part of the celebration of the fiftieth anniversary of the founding of the Pan American Union and as a means of advancing scientific thought and achievement in the American republics, the Eighth American Scientific Congress will convene in Washington, D. C., May 10-18, under the auspices of the government of the United States. Included among the eleven sections will be one on public health and medicine, of which Dr. Thomas Parran, surgeon general of the U. S. Public Health Service, is chairman. Subjects on the program have been chosen as follows: nutrition, tuberculosis, cancer, chemotherapy, diseases of the heart, rehabilitation of physically handicapped children, tropical and other diseases. A section on the biological sciences, of which Edwin G. Conklin, Ph.D., emeritus professor of zoology, Princeton University, Princeton, N. J., is chairman, will include in its agenda discussions of general physiology, with emphasis on biochemistry and biophysics, endocrinology, behavior and physiology of whole organisms, and microbiology, including protozoa, bacteria and viruses. Other sections and their chairmen are:

Anthropological sciences, Herbert J. Spinden, Ph.D., curator, division of American Indian Art and Primitive Cultures, Brooklyn Museum, Brooklyn.
Geological sciences, Thomas Wayland Vaughan, LL.D., former director of the Scripps Institute of the University of California.
Agriculture and conservation, Hugh H. Bennett, Sc.D., chief soil conservation service, U. S. Department of Agriculture, Washington, D. C.
Physical and chemical sciences, Lyman J. Briggs, Ph.D., director, National Bureau of Standards, Washington, D. C.
Statistics, Stuart A. Rice, Ph.D., professor of sociology and statistics, University of Pennsylvania, Philadelphia.
History and geography, Clarence H. Haring, Ph.D., professor of Latin American history and economics, Harvard University, Cambridge, Mass.
International law, public law and jurisprudence, James Brown Scott, J.U.D., secretary, Carnegie Endowment for International Peace, New York.
Education, Nicholas Murray Butler, Ph.D., president of Columbia University, New York.

President Roosevelt will formally open the congress Friday evening May 10 at the Pan American Union. There will be a trip to Mount Vernon Saturday afternoon and on Sunday a trip to Luray Caverns in Virginia. The first plenary session will be held Monday morning and thereafter section meetings will convene morning and afternoon until the final plenary session Friday afternoon. The delegates will spend Saturday May 20 to New York for the Eighth American Scientific Congress Day at the World's Fair. The chairman of the committee organizing the congress is Mr. Sumner Welles, Undersecretary of State; the vice chairman is Warren Kelchner, chief, division of international congresses, Department of State, and the secretary, Alexander Wetmore, Sc.D., assistant secretary of the Smithsonian Institution, Washington. Members of the committee were noted in THE JOURNAL, Dec. 16, 1939, page 2250.

LATIN AMERICA

Personal.—Prof. W. H. Hoffmann of the Finlay Institute, Havana, Cuba, has been elected a member of the Academia Colombiana de Ciencias in Bogotá.

Congress on Tuberculosis.—The Fifth Pan American Congress of Tuberculosis will be held in Buenos Aires and Cordoba, Argentina, October 13-17, under the presidency of Dr. Guersindo Sayago, Cordoba. The official subjects of discussion will be: evidences of tubercularization of the South American countries, heredity and contagion in tuberculosis, and the pulmonary aspects of the extrathoracic forms of tuberculosis.

CORRECTIONS

Society for Study of Asthma and Allied Conditions.—The Society for Study of Asthma and Allied Conditions will hold its annual meeting in Atlantic City, N. J., May 4 instead of April 29, as announced in the news in THE JOURNAL, April 13, page 1469. The meeting described was that of 1939, a program of which was received recently.

Ludwig's Angina.—In the abstract in the Current Medical Literature department of THE JOURNAL, March 16, page 1021, sentence beginning in the fourth line from the top of the second column with the words "The tracheotomy incision should communicate" is incorrect. Dr. Williams did not describe in his paper the tracheotomy incision but an incision for the drainage of the infected suprathyroid tissues.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 16, 1940.

Medical Arrangements of British Army in France

The large British army in France cannot yet be said to have engaged in war on any scale. In the severe weather there has been a certain amount of illness, and the arrangements for its treatment have aroused political criticism. Replying to this in the House of Commons Mr. Stanley, the war minister, said that the army had encountered all the difficulties and improvisations which had grown from the sudden and great expansion. When last April it was decided to double the territorial army the medical services were not doubled at the same time. The necessary expansion had taken place since war broke out. The result was that 90 per cent of the medical officers now serving were a few months ago civilian doctors without military training. Another difficulty was accommodation. When a man was seriously ill the only place to treat him was a proper hospital. Instructions were therefore given that in general a man should not be kept in the reception stations for more than forty-eight hours. It was not always easy to find proper accommodation. For tactical or training purposes the troops were distributed all over the country in France, and the accommodation for a post had to be the best that could be found. That unfortunately was sometimes not very good. But it was in connection with the reception stations that most of the criticisms were made. A general review had not shown faulty medical treatment or deficiency of drugs. It had rather shown unsatisfactory conditions of buildings, equipment or attention, which had not endangered the health of the sick but had caused unnecessary hardship. These things were in process of being remedied.

A fair view was that the medical authorities had been faced with great problems due both to the expansion of the army and to the location of the troops in unaccustomed areas for military reasons. But on the whole these difficulties had been tackled with great energy and success. The rate of admission of pneumonia cases had been only slightly higher in January this year than last year, when there was an epidemic, while the mortality was definitely lower. These facts disproved any allegation of inefficiency or carelessness. There had been some sporadic cases of cerebrospinal meningitis. During the last war the mortality was 40 per cent, but under sulfonamide derivatives it had now been reduced to 8 per cent.

Sugar Restrictions and Medicines

As explained in a previous letter, rationing so far has produced only small inconveniences. It is due to the fact that we import a large amount of food the cargo space for which must be limited so as to supply more space for the munitions of war. Sugar is an example of a largely imported food. The ration is 12 ounces a week per person. Its use in the making of preserves also is limited. The Council of the Pharmaceutical Society has been informed that strict economy in the use of sugar for pharmaceutical purposes will be necessary, although the sugar controller has allotted for 1940 for use in the preparation of medicines 100 per cent of the quantity used in 1939. The unusual prevalence of coughs, colds and sore throats during the past winter caused an unprecedented demand for cough mixtures, tinctures and lozenges, which are composed largely of sugar. As a consequence, manufacturers were obliged to make inroads into the supply of sugar intended for the rest of the year. As it is not likely that the allowance will be increased, it will be necessary to eke out what remains. The president of the Pharmaceutical Society is therefore appealing to physicians to prescribe as sparingly as possible medicinal syrups and other

preparations containing sugar. He is also appealing to manufacturers and chemists to husband their supplies of sugar. Since the object of using sugar in medicines is to make nasty drugs less unpalatable, it will be no loss to use other sweetening agents. Saccharin or glycerin is suggested as an alternative. Both are produced in this country in a quantity sufficient to stand any strain. A series of formulas for sugar substitutes in medicine is under consideration.

Another result of sugar restriction is that evaporated fruits—apple rings, dried pears, peaches and nectarines—will not be available for the ordinary citizen because the entire supply has been taken by the government for the fighting forces. From the first it was determined that they must not go short whatever may happen to the civilians, who are recommended to take advantage of dried fruits, such as figs, dates and raisins.

PARIS

(From Our Regular Correspondent)

March 6, 1940.

Surgical Ambulances at the War Front

Before a medicosurgical reunion, Merle d'Aubigné reported on the value of the new surgical ambulances during their first weeks of use. Most of the wounds treated were due to bullets and mines. Of these, 14 per cent could be saved by urgent intervention while the rest, inoperable cases or such as could wait, were transferred. The principal difficulties were found to exist in the excision of injured tissues in areas of great vascular and nerve density, in the search of a way of approach in wounds believed to be visceral lesions and in complications encountered in cases of multiple wounds such as those caused by mines. The speaker stressed the need of preparatory care of the wounded, of shock treatment before intervention, of sufficient space and of a trained personnel. It is obvious that surgeons engaged in this service work under precarious conditions.

Refugee Physicians

The doctor's degree in medicine has official significance in France only if conferred on a Frenchman. If it is conferred on a foreigner it is called the university diploma of the medical division and does not grant the right to practice medicine in the French empire. Neither does the title *agrégé étranger* (university fellow from abroad), given to many distinguished physicians who come to France to undertake research in hospitals and laboratories, allow holding a medical professorship.

However, for a long time the French university degree has been sought by a great many foreigners, either for the honor implied in it or as a step to the state diploma and the practice of medicine. The two diplomas, the university and the state, have come more and more to be in demand. In 1923 French faculties of medicine conferred ninety-six university degrees and 901 state diplomas; in 1933, 170 and 1,293 respectively; in 1938, 257 and 1,394; in 1939, 206 and 1,726. Of 4,072 university degrees conferred on foreigners, 234 were by state diplomas either through naturalization or by authority vested in the state. The recent persecutions of certain national minorities have increased the number of state diplomas of foreigners. Many of these physicians were placed in the French colonies. Some settled in French rural districts deprived of medical services. A large number, however, installed themselves in towns in competition with resident physicians and came in conflict with the syndicate tribunals and even with courts of law. This naturally prejudiced the medical profession against them. The situation is aggravated by another consideration. French physicians don the uniform and join the army; the foreign physician stays behind and takes over their practice. He occupies a privileged position. He can neither serve in the army nor is he subject to civilian requisition. Polish and Czech physicians solved their problem by enlisting in the armies of their nation organized in France,

but many others, such as Rumanian, Syrian and Russian physicians, have no such openings. To meet the situation, the confederation of medical syndicates took active interest in the proposal of a law according to which a foreign physician under 50 years of age would be prohibited under certain conditions to exercise his profession within the radius of 60 to 65 miles from the place where he had been living since the outbreak of hostilities. In addition, naturalization could be refused foreign physicians who abused French hospitality and became guilty of acts contrary to law.

Blood Transfusion

The technique of blood transfusion, the choice between fresh and banked blood and the liquids capable of replacing the blood are current problems. According to Bécart, blood transfusion meets two major indications: hemorrhage and shock. In hemorrhage, lost blood must be replaced; in shock, blood flow retarded in the vascular system needs to be reestablished. However, regularity of movement is lacking at present in all transfusion techniques. For that reason Bécart constructed a new apparatus by means of which a regularity analogous to that of natural circulation is effected. He discussed it before the Société de médecine de Paris. The blood flow in this apparatus is continuous and may have sixty, eighty and 100 beats a minute. Like the pulse, its graphic representation is an uninterrupted and regularly positive curve. This rhythm is attained by means of a small pump or, rather, a sort of turbine, the principal factor of which is a cylindric rotor turning always in the same direction, thereby avoiding the shock inflicted on the blood by aspiration and compression. The output is measured by a meter. The bruising of the components of the blood is thus overcome. Reactions which occur at times after transfusion are eliminated. The apparatus is managed either by hand or by a small motor, a colored indicator signifying the frequency of the pulse beats. The simplicity of the mechanism is as remarkable as the conception is ingenious.

Dr. A. Stillmunkes, before the Société de pathologie comparée, opposed the use of blood of dead bodies, subject as it is to dangerous changes. Placental blood, he said, is not always "complete," often presents phenomena of fibrinolysis, is capable of transmitting syphilis and can scarcely be kept for more than forty-eight hours. Safeguards in the refrigeration of the blood of living donors consist in the selection of blood that has preserved its arterial red color. The cells must be intact. If they present indentations, the distinctive intracellular protein substances of the hemoglobin which accumulates about the globule in the form of granulous or filamentous extensions are no longer present. Hemolysis is easy to observe. Stillmunkes used an electric colorimeter with a constant current and a photoelectric cell. Hemolysis appeared about the tenth day whatever the method of conservation employed was, even for fresh blood. All resistance, measured by the classic method of sodium chloride, showed a diminution parallel to that of hemolysis but began somewhat sooner. The conclusion of his researches is that conserved blood can not be used without danger after the seventh day.

Control of Venereal Diseases

War conditions have obliged governments to reinforce prophylactic measures against venereal diseases. On the advice of the recently created Haut comité de la population and of different other agencies engaged in sanitation and moral conditions, the French government has passed some new regulations, several of which had been previously proposed but had evoked popular dissatisfaction as infringing on the liberty of the individual. According to these new measures the physician must point out to the patient the dangers involved and the transmissibility of the disease. Moreover, he must report every case to the health authorities. Information given is of a

confidential character. Suspected individuals are required, if requested, to exhibit a medical certificate made out by an approved physician indicating that the bearer is free from the disease. The law can compel infected persons to be treated and to submit to serologic supervision. A training course in syphilology is required of medical students. Restaurant keepers, hairdressers, wine merchants and others are required to employ effective sterilization of equipment and tableware. Drugs sold for the treatment of venereal diseases must conform to approved standards. The effectiveness of the new measures will depend principally on the degree of control exercised by those to whom venereal control has been entrusted.

Sixth Congress of the Therapeutic Union

The sixth annual meeting of the Union thérapeutique was held March 18 in the council chamber of the Faculty of Medicine of Paris. This union was founded in 1934 by Professor Loeper, at that time president of the Société française de thérapeutique. Its purpose is to unite once a year the various therapeutic and pharmacodynamic societies. Thirteen nations were represented, with the minister of public health presiding. In spite of wartime difficulties many foreign delegates put in their appearance, including Burgi of Berne, Riatti of Ferrara, Dustin of Brussels, Marañón of Madrid and numerous delegates of Poland and Czechoslovakia. The first session was devoted to the discussion of phosphorus. Babonneix and Busquet described the treatment of granulocytopenia with nucleotides of pentose and nucleosides. Hazard spoke on the conditions under which phosphates or rather calcium phosphates are absorbed by the intestine, a complex absorption because of the multiple factors governing the metabolism of calcium. Mouriquant and Leulier discussed phosphate deficiency and raised the question of rickets and the relations between phosphorus deficiency and that of vitamins P and D. Dustin reported on physical and leukopoietic medications such as those of arsenic, sulfur and copper, and those of vitamins and glands.

BUENOS AIRES

(From Our Regular Correspondent)

Feb. 27, 1940.

Prize for Medical Novel

The book club of Buenos Aires (Club del Libro) has announced a prize contest for a novel, biography or autobiography dealing with the life, struggles and ideals of a physician and his environment. Historical subjects are also admitted. The background must be exclusively South American. It is open to Spanish-American writers. Manuscripts, not previously published, must be submitted by July 31, 1940. The award will consist of 2,000 Argentine pesos (\$595). The club may acquire additional manuscripts at 1,000 pesos (\$298). Manuscripts of a political and racial nature are not desired.

A New Insect

A new insect has made its second annual appearance in Buenos Aires, a Coleopterus called *Paederus fuscipes brasiliensis*. It appears in extremely hot weather, attaches itself to the neck, does not sting and does no harm if removed without crushing. If injured, the beetle exudes an irritant that causes pyrexia and dermatitis. After a few hours the typical picture is that of an erythema and phlyctenae with turbid contents which coalesce and cause extensive tissue destruction, making surgical treatment with drainage necessary.

National Commission for School Aid

It is the purpose of the Argentine government to maintain throughout the country a vigorous policy of social aid for school children, in accordance with resolutions of the Argentine parliament. As a first step 594 school lunch arrangements were recently organized and garments distributed that affected 74,000 children. The federal government has appropriated 2

million Argentine pesos (\$595,000) and founded the national commission for school aid, which is charged with the responsibility of expeditiously carrying out the measures adopted by the government. The commission consists of government and school officials in leading positions and of the president of the federal public health service.

Feeding School Children in Chile

The minister of health, in cooperation with the bureau of nutrition, has instituted school breakfasts, consisting of milk chocolate and bread, in Chile. It is estimated that 400,000 Chilean children need a school breakfast. This will require an appropriation of 18 million Chilean pesos (\$5,358,600). A further difficulty in carrying out this project lies in the comparative scarcity of milk.

Noxious Gases

The health department of Buenos Aires has made investigations to determine to what extent the consumption of fuel oil used by motor busses is a public nuisance. These black, thick gases are extremely unpleasant and also prejudicial to health. Motor busses using this oil are, therefore, required to attach contrivances to counteract these noxious effects. Public opinion demands the suppression of motor fumes within the city.

Congress of Surgeons

Early in January the second congress of South American surgeons was held in Santiago de Chile, at which delegates from Uruguay, Peru, Bolivia, Paraguay and especially Argentina were present. The first scientific session was devoted to the discussion of the physiopathology and treatment of goiter. Dr. José Caeiro of Argentina, Dr. V. Pérez Fontana of Uruguay and Dr. E. Betermann of Chile led the discussions. The subject of the second day was vertebral fractures, with Drs. E. Lagomarsino of Argentina, L. Bado of Uruguay and I. Horvitz of Chile speakers. Dr. Manuel L. Pérez of Buenos Aires read a paper on puerperal peritonitis, the third subject.

Endemic Goiter in Argentina

Endemic goiter, known in Argentina since the time of the Spanish conquest, is definitely traceable to iodine deficiency in water, soil and foods of certain regions. For that reason potassium iodide has been furnished free of charge since 1924, in tablets of from 0.005 to 0.01 Gm., by the public health service to the indigent. The greatest incidence of goiter is in several northern provinces (Salta, Tucumán and Jujuy) and in the Andes region. In one of these northern valleys 83 per cent of the school children were afflicted; the general incidence in these northern provinces fluctuates between 50 and 75 per cent. The plain sections of the country, with a few exceptions, are free from goiter. The most common form of goiter that prevails is of the type that is scarcely visible.

Spanish-American Hospital Congress

The first Spanish-American hospital congress was held January 7-13 in Santiago de Chile and in Valparaíso. Official delegates of Argentina, Colombia, Venezuela, Paraguay, Panama, Guatemala, Bolivia, Uruguay, Ecuador, Peru and the Dominican Republic participated. Concurrently, hospital exhibits were held and courses on hospital management given. It was pointed out that European hospital systems could not be transferred to Spanish-American conditions without adaptations. A resolution was passed requesting Spanish-American university bodies to promote the science of nutrition by special courses and to create standards for the preparation of special diets. During the congress a sanatorium was dedicated in Valparaíso, built at the cost of 8 million Chilean pesos. Recommendations were made that South American governments organize hospital associations to meet at regular intervals for the exchange of administrative and scientific points of view. The creation of a periodical for hospitals was likewise recom-

mended. Great improvements for hospital management are expected from the extensive deliberations of these meetings. The next session is to be held in Bogotá, Colombia.

Control of Venereal Diseases in Argentina

The national public health service has issued a report on the control of venereal diseases achieved since the law governing venereal prophylaxis went into effect in June 1937. By centralizing all service bureaus under unified control, the law made possible the observation and treatment of all persons with venereal afflictions. It provides free hospital treatment and requires obligatory treatment of infectious cases, compulsory hospitalization of those resisting treatment, individual prophylaxis, premarital certificates for men, regulation of prostitution and the suppression of brothels. In general, all hospitals in Argentina except those for tuberculosis, leprosy and mental diseases have a division or a consulting bureau for the treatment of venereal diseases. There are about 570 centers.

The national public health service has an abundance of drugs, especially arsphenamine; at the same time the manufacture of bismuth and mercury preparations was intensified. The method used is the mixed intermittent therapy recommended by the League of Nations but more intensive in the total amount of the drug taken and continuing for a longer time. In the first year, three series of neoarsphenamine totaling 21 Gm. are administered and three series of bismuth compounds of respectively twenty, eighteen and sixteen injections, every two weeks. In the first two series neoarsphenamine and bismuth compounds are given simultaneously; in the third, neoarsphenamine alone; in the fourth, bismuth compounds alone. An interval of four weeks occurs between the treatments. The follow-up period lasts three years, in which respectively four, three and two series with bismuth are conducted, each of sixteen injections. In the antivenereal wards and consulting bureaus in Buenos Aires a marked recession of new cases of syphilis has been noted since 1934. A marked reduction during the same period has also been observed for cases of chancroid, which is treated with Nicolle's vaccine. Nothing definite can yet be said regarding venereal lymphogranuloma.

To facilitate diagnosis, the national public health service has organized six bacteriologic diagnostic centers in the larger cities in addition to the bacteriologic institute in Buenos Aires. Specimens to be examined can reach one of these centers within twenty-four hours. The public health service is authorized by law to supervise all private diagnostic institutes. Training courses are also planned in Buenos Aires for physicians in charge of antivenereal control.

The certificate required of all men before marriage is issued by certain physicians (1,800 out of 11,700) who exercise official or hospital functions or are given special authority by the public health service. The enforcement of the prenuptial examinations has not encountered the difficulties expected or reduced the number of marriages. A museum is being organized in Buenos Aires to aid venereal control by means of lectures, films, demonstrations and printed information.

Specific drugs used in venereal control can be imported without payment of a tax. Drugs are furnished only on medical prescription, to avoid quackery. Advertisements in the daily papers are also under the jurisdiction of the national public health service. In 1937, 40,847 recruits showed a 1.66 per cent incidence of venereal disease; in 1938 it fell to 0.87 per cent in 42,231 men. A similar reduction was noted in soldiers the first half year of military service: 2.43 per cent in 1937 against 0.95 per cent in 1938.

Personals

Dr. Aníbal Ruiz Moreno, president of the Argentina League against Rheumatism, is on his way to the United States to study the organization of rheumatism control. His investigations are sponsored by the faculty of medicine of Buenos Aires.

According to an announcement made by Prof. A. H. Roffo, Argentine cancer expert in Buenos Aires, the University of Wisconsin Medical School has created a fellowship valued at 10,000 Argentine pesos (\$2,977) annually in the institute of experimental medicine. The purpose of the fellowship is to create a closer cooperation between the research institute of Buenos Aires and the newly created institute of the University of Wisconsin.

In Paris there exists the Fondation Angel Roffo, which seeks to promote scientific relations between France and Argentina by fellowship grants. The French League against Cancer, entrusted with the award of these fellowships, has made available 25,000 francs (\$530) for the appointment in 1940 of a Frenchman for research work at the institute directed by Professor Roffo in Buenos Aires.

G. Bosco, professor of symptomatology in Buenos Aires, was awarded the Bourceret prize by the Academy of Medicine in Paris for his "Anatomotopographic Diagnosis of the Occlusion of the Coronary Artery."

Prof. Oscar Orias was appointed professor of physiology and director of the physiologic institute of the Faculty of Medicine at the University of Córdoba.

The Sociedad Argentina de psicoanálisis was founded as an affiliate of the Asociación Médica Argentina January 12. Prof. Juan Ramón Beltrán, professor of the history of medicine, was elected president.

Dr. José A. Pérez, associate professor at the University of Córdoba and director of a hospital, was given leave by the university to continue research studies, principally on tuberculosis, in the United States, at the State Health Department of New York, the Henry Phipps Institute in Philadelphia and the National Institute of Tuberculosis in Minneapolis.

A society for the study of allergy has been organized in Buenos Aires. Last year the Academy of Medicine in Buenos Aires arranged a series of lectures on allergy.

ITALY

(From Our Regular Correspondent)

Feb. 29, 1940.

National Congress of Urology

The eighteenth national congress of the Società Italiana di Urologia was held recently at Naples. The first official topic concerned traumatology and industrial accidents of the urinary tract, with Professors De Gironcoli of Treviso and Nisio of Bari the official speakers. De Gironcoli discussed the lesions of the bladder and the urethra. In the war in Spain the largest number of ruptures of the deep urethra was due to automobile accidents. The speaker believes that the ultimate results of the treatment depend on the opportunity of an early operation rather than on the seriousness of the lesion and the presence of complications.

Professor Nisio discussed trauma of the kidneys and ureters in industrial accidents. He believes that, in evaluating the effects of accidents in relation to compensation, one must consider the general condition of the worker before the accident, as there may be physiologic or pathologic conditions which may act as causes in the evolution of the traumatic lesions. An interesting problem is the evaluation of working capacity when one kidney is lost and the remaining one is normal. The tables of insurance institutions for workers show an estimation of 25 per cent diminished working capacity. The author believes that the working capacity is diminished 40 per cent when one kidney is lost.

Dr. Sorrentino made a statistical report covering more than 80,000 cases of trauma observed in the Naples Hospital, among which were 246 cases of renal trauma. Professor Taralli discussed medicolegal evaluation of working capacity in trauma on the urinary tract. He believes that an estimate of 25 per cent

reduction of working capacity after nephrectomy in the presence of a normal remaining kidney is fair.

The second official topic was on disturbances of the bladder in relation to functional and organic alterations of the nervous system. Professors Sacco and Caporale of the Genoa and Turin universities, respectively, were speakers. Caporale discussed disturbances of micturition due to lesions in the brain, spinal cord and peripheral nervous system. In the presence of lesions of the brain, the disorder of the bladder does not call for direct treatment. It subsides as the nervous condition improves from proper treatment. Cystometry in association with other methods for the diagnosis of urologic disorders is important in the diagnosis of the nervous disease, as the functions of the sympathetic, parasympathetic and voluntary factors in the physiology of micturition can be separately determined.

Personals

Prof. Ludovico Tommasi has been appointed head of the clinica dermosifilopatia of the University of Naples. He was appointed to the chair of clinical medicine in the University of Sassari in 1925 and later on to the Palermo University. He has published many articles. He was president of the Società Italiana di Dermatologia e Sifilografia for four years.

Prof. Luigi Auricchio, head of the clinica pediatrica of Naples, was recently appointed head of the university, from which institution he graduated in 1920.

Prof. Mario Mazzeo was appointed to the chair of hygiene of the University of Naples to fill the position left by Dr. De Blasi, who was transferred to Rome. He has written more than 100 articles on microbiology, immunology, social hygiene, the resistance of Brucella to disinfectants, immunization reactions of animals subjected to various treatments, frequency of tuberculosis in bakers, relation between epinephrine and cholesterol, and the effect of disturbances of these substances in the evolution of infections.

Deaths

G. G. Perrando, professor emeritus in legal medicine and in insurance medicine in the Genoa university, is dead. He wrote a manual on legal medicine.

Prof. Aristide Busi, a senator, head of the Istituto di Radiologia Medica of the University of Rome, former president of the Facoltà di Medicina of Rome, founder fellow and president of the Società Italiana di Radiologia Medica, died in Rome. He was the organizer of two large institutions for radiologic work. He wrote a book on x-ray diagnosis.

Marriages

JOSEPH M. HUERKAMP, Fort Recovery, Ohio, to Gene Emerson Swearingen at Portland, Ind., in February.

JULIAN J. FERTITTA, Beaumont, Texas, to Miss Elizabeth Bassett Hayward of New Orleans in February.

OTIS WAYNE YEAGER, Rockmart, Ga., to Miss Julia Lee Bowman at Birmingham, Ala., February 24.

HERMAN G. RUBIN, Akron, Ohio, to Miss Eileen Strauss of Sumter, S. C., in Chicago, February 25.

WILLIAM F. CARTER to Miss Bess Salmon, both of Pleasureville, Ky., in Eminence, March 15.

JACOB EDWARD HERSHBERGER, Dayton, Ohio, to Miss Louise Koester of Toledo in February.

JOHN T. CATER to Miss Jessie Ervin Howell, both of Montgomery, Ala., March 23.

DANIEL G. CAUDY, Zanesville, Ohio, to Miss Ann Saum of Dayton, Dec. 24, 1939.

KEITH J. LONG, Fairview, Ill., to Miss Dorothy Wood of Peoria, February 7.

ISADOR BLUM, New York, to Miss Ruth Klar of Elizabeth, N. J., March 21.

Deaths

Bernard Fantus ♂ distinguished as a leader in the field of therapy, died of myocarditis at the age of 65 at his home in Chicago, April 14.

He was born in Budapest, Hungary, Sept. 1, 1874. After preliminary study in Vienna he came to the United States, where he attended the University of Illinois School of Medicine and received his M.D. degree in 1899. He did graduate study in pharmacology at Strasbourg in 1906, at Berlin in 1909 and at the University of Michigan in 1917, from which he received the degree of master of science. He served as associate attending physician at the Cook County Hospital 1901-1902 and was in charge of the medical dispensary at the University of Illinois 1902-1913. From 1903 to 1924 he was professor of pharmacology and therapeutics at the University of Illinois School of Medicine and then taught as associate professor of medicine at Rush Medical College from 1924 to 1932. Since 1932 he had been professor of pharmacology, materia medica and therapeutics at the University of Illinois. He served also as professor of physiology at the College of Pharmacy of the University of Illinois from 1913 to 1917. Since 1930 he had been attending physician to the University Hospital and since 1934 director of therapeutics at the Cook County Hospital.

Dr. Fantus contributed widely to scientific medical literature and conducted numerous original investigations in the field of therapy. His research covered particularly such topics as the use of candy medication, the technic of medication and, more recently, the preservation of blood. In 1933 he was awarded the first honorary degree given by the American Therapeutic Society for his work in making medication more palatable for children. The "blood bank" at the Cook County Hospital was established by him on March 15, 1937, and his plan of organization has been widely followed. Since 1918 he had been editor of the "Year Book of General Therapeutics." His contributions to medical literature include also "Prescription Writing," "Candy Medication," "Useful Cathartics" and "Technic of Medication" and many periodical articles.

For many years he contributed his time and his efforts toward the establishment of an area in Chicago surrounding the Cook County Hospital and the nearby medical schools and hospitals as a medical park. More recently he was chairman of the Committee on Spas of the American Medical Association. He was an indefatigable worker, a genial personality and an inspirational contributor in the field of therapeutics.

John Andrew Amyot, Ottawa, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1891; at one time professor of hygiene at his alma mater; established the first postgraduate course at the University of Toronto, leading to the D.P.H. qualification; established and directed the Provincial Laboratory of Ontario; was the first deputy minister of the newly organized federal department of health, later deputy minister of the department of pensions and national health, and deputy minister of health; represented Canada on several occasions in the health section of the League of Nations; served with the Canadian Army during the World War; aged 72; died, February 13.

Samuel Clark Red ♂ Houston, Texas; Jefferson Medical College of Philadelphia, 1887; fellow of the American College of Surgeons; member of the House of Delegates of the American Medical Association in 1929; past president of the Harris County Medical Society and the State Medical Association of Texas; for many years president of the school board; member of the staff of St. Joseph's Infirmary; aged 78; died, February 25.

Kenneth Mercereau Davenport ♂ Watertown, N. Y.; University of Michigan Medical School, Ann Arbor, 1927; formerly a passed assistant surgeon in the U. S. Public Health Service reserve; member of the American Academy of Dermatology and Syphilology; aged 38; died, February 15, of burns received when he attempted to rescue his family from a burning building.

Roy Stanley Smith, Detroit; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1914; member of the Michigan State Medical Society; on the staffs of the Mount Carmel Mercy Hospital, St. Joseph's Mercy Hospital and the Highland Park General Hospital; aged 52; died, February 29, in St. Petersburg, Fla., of coronary thrombosis following hemorrhoid fixation.

George Alfonzo Peirce, Enfield, N. H.; Harvard Medical School, Boston, 1898; member of the Massachusetts Medical Society and the New England Society of Psychiatry; served during

the World War; formerly assistant superintendent of the Tewksbury (Mass.) State Hospital and Infirmary; aged 65; died, February 21, of cirrhosis of the liver and arteriosclerosis.

Frank Ott Stem, Berlin, N. J.; Jefferson Medical College of Philadelphia, 1891; bank president; mayor; formerly county physician and coroner; medical director of the Camden County General Hospital and the Camden County Hospital for Mental Diseases, Grenloch; aged 70; died, February 6, of respiratory infection, cardiac decompensation and renal insufficiency.

Moses Emmett Blahd, Cleveland; Western Reserve University Medical Department, Cleveland, 1906; member of the Ohio State Medical Association; fellow of the American College of Surgeons; served during the World War; on the staff of the Mount Sinai Hospital; aged 56; died, February 28, in Tucson, Ariz., of carcinoma of the rectum and liver.

George James Alexander, Bala-Cynwyd, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1905; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; aged 64; died, February 24, in the Philadelphia General Hospital of arteriosclerosis.

Carroll Burton Bacon ♂ Waterloo, N. Y.; Jefferson Medical College of Philadelphia, 1896; for many years president of the board of education, and county coroner; served at various times as health officer; on the staff of the Waterloo Memorial Hospital; aged 71; died, February 24, of carcinoma of the prostate.

Edwin Joseph Kehoe, San Francisco; Miami Medical College, Cincinnati, 1903; at one time superintendent and medical director of the county tuberculosis sanatorium, Pontiac, Ill.; for many years associated with the U. S. Veterans' Bureau; aged 65; died, February 12, in the Stanford University Hospital.

Allan Marshall Wilkinson ♂ Los Angeles; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1901; served during the World War; on the staffs of the Children's Hospital, Hollywood Hospital and the California Hospital; aged 64; died, February 1, of influenza and pneumonia.

Juanita McFarland Jennings, Louisville, Ky.; Lincoln Memorial University Medical Department, Knoxville, Tenn., 1911; member of the Kentucky State Medical Association; field director in the division of county health, state board of health; aged 51; died, February 24, of carcinoma of the lung.

Benjamin Leon Grodnitzky, Saratoga Springs, N.Y.; University of St. Vladimir Faculty of Medicine, Kiev, Russia, 1899; Université de Paris Faculté de Médecine, France, 1930; on the staff of the Saratoga Hospital; aged 66; died, February 24, at Boston of embolism following an operation.

William Jackson Melvin, Darke, W. Va.; Kentucky School of Medicine, Louisville, 1890; member of the West Virginia State Medical Association; member of the board of county commissioners; aged 72; died, February 19, in the Charles Town (W. Va.) Hospital of pneumonia.

Thomas Joseph Toner, Wentzville, Mo.; Northwestern University Medical School, Chicago, 1906; member of the Missouri State Medical Association; served during the World War; aged 64; died, February 22, in St. Joseph's Hospital, St. Charles, of aneurysm of the aorta.

Louis Edward Printy, St. Louis; St. Louis University School of Medicine, 1911; senior instructor in internal medicine at his alma mater; assistant physician to St. Mary's Group of Hospitals; served during the World War; aged 51; died, February 18, in the Desloge Hospital.

Lemuel A. Templeton, Huntland, Tenn.; Vanderbilt University School of Medicine, Nashville, 1889; University of Nashville (Tenn.) Medical Department, 1902; aged 76; died, January 11, in the Lincoln County Hospital, Fayetteville, of carcinoma of the prostate.

Louis William Scherman, St. Louis; Homeopathic Medical College of Missouri, St. Louis, 1900; member of the Missouri State Medical Association; on the staffs of the Deaconess Hospital and St. Anthony's Hospital; aged 61; died, February 20, of coronary thrombosis.

Daniel Blake Harris, Munford, Ala.; Southern Medical College, Atlanta, 1897; member of the Medical Association of the State of Alabama; for many years member of the county board of education; aged 67; died in February at the Citizens' Hospital, Talladega.

Robert Bruce Cameron, Defiance, Ohio; Starling Medical College, Columbus, 1873; member of the Ohio State Medical Association; formerly member of the state legislature; at one time county health officer; aged 94; died, February 22, of coronary occlusion.

Taswell Pittman Haney Sr., Iuka, Miss.; Memphis (Tenn.) Hospital Medical College, 1907; member of the Mississippi State Medical Association; county health officer; aged 72; died, February 22, in the McRea Hospital, Corinth, of coronary thrombosis.

Henry Francis Cassidy, Baltimore; University of Maryland School of Medicine, Baltimore, 1890; member of the Medical and Chirurgical Faculty of Maryland; for many years police physician; aged 70; died, February 12, in Roland Park, Md.

Charles Arthur Thompson, Newton, Mass.; College of Physicians and Surgeons, Baltimore, 1896; member of the Massachusetts Medical Society; aged 67; died, February 3, in the Newton Hospital of cerebral hemorrhage and arteriosclerosis.

Thomas Edmond Benton, Lonoke, Ark.; Memphis (Tenn.) Hospital Medical College, 1901; formerly coroner and city health officer; aged 64; died, February 5, in a hospital at Little Rock of bronchopneumonia and cerebral arteriosclerosis.

Fletcher Bliss Forrest, Bellwood, Pa.; Southern Homeopathic Medical College, Baltimore, 1904; member of the Medical Society of the State of Pennsylvania; aged 62; died, February 8, in the Altoona (Pa.) Hospital of a streptococcal septicemia.

James V. Beghtol, Hastings, Neb.; College of Physicians and Surgeons, Keokuk, Iowa, 1877; member of the Nebraska State Medical Association; aged 88; died, February 6, in the Mary Lanning Memorial Hospital of cerebral hemorrhage.

Albert Wilberforce Williams, Chicago; Northwestern University Medical School, Chicago, 1894; member of the Illinois State Medical Society; on the staff of the Provident Hospital; aged 78; died, February 26, of coronary thrombosis.

De Witt Farmer Morgan © Okolona, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1899; at one time county health officer; at one time bank president; aged 71; died, February 17, of coronary thrombosis.

William Gardiner Symon, © Garrett, Ind.; University of Colorado School of Medicine, Denver, 1913; member of the American Academy of Ophthalmology and Otolaryngology; aged 54; died, February 28, of heart disease.

Robert Reagles, Arlington, Wis.; Rush Medical College, Chicago, 1894; aged 78; died, February 3, in Madison (Wis.) General Hospital of bronchopneumonia, cerebral thrombosis, arteriosclerosis and chronic myocarditis.

Frank Devlin, © Newark, N. J.; Long Island College Hospital, Brooklyn, 1897; aged 72; on the staff of City Hospital and St. James Hospital, where he died, February 23, of injuries received in an automobile accident.

Charles E. Hurley, Bentonville, Ark.; Arkansas Industrial University Medical Department, Little Rock, 1892; member of the Arkansas Medical Society; aged 72; died, February 29, of encephalitis and encephalomalacia.

Robert Emmett Eagan, Long Beach, Calif.; Louisville (Ky.) Medical College, 1896; member of the Kansas Medical Society; aged 69; died, February 1, of cerebral hemorrhage, hypertension and arteriosclerosis.

Samuel Jones Bampffield, Denmar, W. Va.; Howard University College of Medicine, Washington, D. C., 1904; superintendent of the Denmar Sanitarium; aged 62; died, February 22, of cerebral hemorrhage.

Noah Franklin Turner, Birmingham, Ala.; Meharry Medical College, Nashville, Tenn., 1906; aged 62; was killed, February 17, when the automobile in which he was driving was struck by a train.

Robert Cartwright Cheney © Boston; Harvard Medical School, Boston, 1919; member of the New England Ophthalmological Society; aged 45; died, February 8, of a self-inflicted gunshot wound.

Joseph Roderick Winnett © Eldora, Iowa; Drake University College of Medicine, Des Moines, 1912; served during the World War; aged 53; died, February 8, of metastatic carcinoma of the spine.

William Bolander Hall, Boise City, Okla. (licensed in Oklahoma under the Act of 1908); county health superintendent for many years; aged 86; died, January 11, of cerebral hemorrhage.

John William Craig, Many, La.; Louisville (Ky.) Medical College, 1884; member of the Louisiana State Medical Society; aged 80; died, February 12, in the Highland Sanitarium, Shreveport.

David W. Levy, Philadelphia; Medico-Chirurgical College of Philadelphia, 1889; member of the Medical Society of the State of Pennsylvania; aged 82; died, February 11, of bronchopneumonia.

Harry Martin Gangloff, Pittsburgh; Cleveland Homeopathic Medical College, 1907; served during the World War; aged 60; died, February 3, of arteriosclerosis and coronary occlusion.

Henry J. Whitney, Olympia, Wash.; California Medical College, Oakland, 1883; University of Oregon Medical School, Portland, 1888; Civil War veteran; aged 92; died, February 6, in Retsil.

Homer P. Yeater, Cole Camp, Mo.; Ensworth Medical College, St. Joseph, Mo., 1892; aged 71; died, February 1, in the Research Hospital, Kansas City, of hypertrophy of the prostate.

Norris Stanley McDowell © Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1895; aged 66; died, February 8, of lymphosarcoma and rupture of the spleen.

Leon C. Ives © Peoria, Ill.; Chicago College of Medicine and Surgery, 1916; served during the World War; aged 49; died, February 29, in the Proctor Hospital of gastric carcinoma.

Edward Kingsbury Ross, New York; Columbia University College of Physicians and Surgeons, New York, 1904; aged 69; died, February 21, in the Wyckoff Heights Hospital, Brooklyn.

Edward O. McDermott, Wilmot, Ark.; University of Louisville (Ky.) Medical Department, 1887; aged 74; died, February 13, of abscess of the lung following influenza.

Jesse Benton Titterington, Dallas, Texas; Bellevue Hospital Medical College, New York, 1897; aged 71; died, February 18, in St. Paul's Hospital of cirrhosis of the liver.

Orman Brown Humphrey, Bangor, Maine; Dartmouth Medical School, Hanover, N. H., 1894; aged 72; died, February 24, in Coral Gables, Fla., of coronary thrombosis.

Charles A. Goudchaux, Big Cane, La.; University of the South Medical Department, Sevanee, Tenn., 1897; aged 69; died, January 27, of acute dilatation of the heart.

Luther H. Burnett, Kansas City, Mo.; State University of Iowa College of Medicine, Iowa City, 1878; formerly a druggist; aged 84; died, February 22, in St. Mary's Hospital.

Ernest A. Downey, Huntland, Tenn.; Memphis (Tenn.) Hospital Medical College, 1910; aged 56; died, February 18, in the Lincoln County Hospital, Fayetteville.

Willis H. Keenan, Coshocton, Ohio; Ohio Medical University, Columbus, 1905; served during the World War; aged 61; died, February 28, of cerebral hemorrhage.

Leon Bowman, New York; Columbia University College of Physicians and Surgeons, New York, 1896; aged 66; died, February 11, of coronary thrombosis.

John Thomas Patton, New Weston, Ohio; Starling Medical College, Columbus, 1897; aged 74; died, February 26, at the Miami Valley Hospital, Dayton.

Jose S. Arrache Battistini © Yauco, P. R.; College of Physicians and Surgeons, Baltimore, 1915; aged 45; died, January 21, of a self-inflicted wound.

John Washington St. Sing, Kellyville, Okla.; University of Nashville (Tenn.) Medical Department, 1909; aged 61; died, February 3, in a hospital at Tulsa.

Edward Blake Richardson, Orleans, Mass.; Boston University School of Medicine, 1891; aged 72; died, January 22, of carcinoma of the intestine.

Bruce Flagg Daniels, McGraw, N. Y.; Boston University School of Medicine, 1934; aged 32; died, February 13, of a gunshot wound, self inflicted.

John B. Atchley, Lebanon, Mo.; American Medical College, St. Louis, 1882; aged 85; died, February 25, in St. Vincent's Hospital, Little Rock.

Horace W. Reid, Oakland City, Ind.; Physio-Medical Institute, Cincinnati, 1881; aged 88; died, February 27, of myocarditis and influenza.

Caleb C. Cochran, Nashville, Tenn.; College of Physicians and Surgeons, Keokuk, Iowa, 1897; aged 90; died, February 26, of senility.

Paul Andrew Lawrence, Mooringsport, La.; Memphis (Tenn.) Hospital Medical College, 1900; aged 68; died in February.

Marvel Thomas, Gillespie, Ill.; Missouri Medical College, St. Louis, 1884; aged 84; died, February 16, of cerebral hemorrhage.

Bureau of Investigation

SOME ALLEGED "DELAYED PERIOD" CURES

The Fraudulent Nostrums of Isidore Hymes Debarred from the Mails

A fraudulent medical mail-order business conducted under various names from Lowell, Massachusetts, was debarred from the mails July 21, 1939. Most of the material that follows is based on data given by the Solicitor for the Post Office Department in a memorandum to the Postmaster General recommending the issuance of a fraud order.

In 1918, according to the report, one Isidore Hymes incorporated at Lowell a business known as Western Refining Company, with a capital of \$20,000. Hymes owns 99 per cent of the stock and the other 1 per cent is owned by his family. One of the assets of the business is a drug store from which Hymes conducted his mail-order business under various trade names. Some of these were:

COTE PRODUCTS COMPANY, 205 Middlesex St., Lowell.
THE MOTEX COMPANY, 16 Robeson St., Lowell.
FLORENCE RICHMOND.
BETTY LAKIN.

The business of these variously named concerns consisted in selling through the mails certain pills and capsules for the alleged relief of "delayed menstruation." The products were designated:

Cote No. 1 Pills (\$2 a box of 20 pills)
Cote Special Formula 4NXXX (\$3 a box)
Cote Super-F Capsules (\$5 a box)
Regular Motex Pills (\$2 a box)
Special-X Motex Pills (\$3 a box)
Motex Super-F Capsules (\$5 a box)

It is notorious that "patent medicines" sold for the alleged relief of what is euphemistically called "suppressed menstruation" are most frequently bought by women who, believing themselves pregnant, wish to produce an abortion. It is usual for those who sell products of this type to offer them in what are alleged to be varying "strengths," the so-called stronger pills being sold at much higher prices. For the sellers know that women will buy the higher priced pills or potions in the hope of producing the effect desired. In this respect the business of Isidore Hymes was conducted along orthodox lines. It also ran true to type in that none of the advertisements frankly stated that the pills or capsules would produce an abortion. To have so admitted would have been to violate a federal law.

But neither did the advertising come out frankly in easily understood language and warn purchasers that the Cote or Motex pills or capsules were not sold for abortifacient purposes. What Mr. Hymes's concern did say, under paragraphs headed "The Ethical Purpose of Cote [or Motex] Pills," was that the pills could "not produce return of regularity when same is impossible"—a statement of fact self evident to the point of futility. The same paragraphs also specified that in cases in which "the female organs have been removed" by surgical operation the Cote or Motex pills could not produce menstruation—another obvious truism. Nor, the advertising continued, could they "be effective if change of life has been passed" nor "where the delay is caused by systemic disease, or by ulceration of the womb or a gravid condition of same." This last was presumably included as an attempt to avoid being charged with recommending the products for abortifacient purposes.

But how many women of the type that buy nostrums of this sort know that the expression "a gravid condition" of the womb means pregnancy?

The composition of the Hymes nostrums was similar to that of most of the abortifacient "patent medicines." They contained varying amounts of such irritant volatile oils as green apiol and oil of savin; they contained such purgatives as aloes and castor oil; they also had extract of cotton root bark, oil of rue, "ergotin (Bonjean)" and so on.

When the concerns were notified to show cause why a fraud order should not be issued against them their attorneys filed a motion to suspend the proceedings on the ground that another governmental agency was considering action against the outfit. This doubtless referred to the fact that the Federal Trade Com-

mission had issued a complaint against the Western Refining Company, Inc., trading as The Motex Company and Cote Products Company, charging that the companies' representations that their products were "safe, competent and reliable remedies" were, in fact, false and misleading.

The Post Office Department's answer to the attorneys was that the "other governmental agency" was suspending action pending final disposition of the case by the fraud order department of the Post Office; hence the motion to suspend was denied. A hearing was held in June 1939 and lasted about two days. In behalf of the government there appeared Dr. Robert E. Herwick, who, as a pharmacologist and toxicologist, testified that the amount of apiol in the nostrums might prove poisonous to the users. In this connection it is worth noting that Sollmann¹ in discussing apiol and savin states that, as regards the former, "Fatal poisoning, with intestinal symptoms, icterus and uremia, is reported," while in the case of the latter "Poisoning has often occurred from their use as abortifacients." Sollmann also remarks, in discussing intestinal irritants used for abortifacient purposes:

"It must be remembered that these irritants produce their ecboic effect only secondarily to a gastro-enteritis. The latter may be so violent as to be fatal without accomplishing the desired [abortifacient] result."

Another physician who appeared for the government was Dr. Herman Hertzberg, also of Washington, who testified as a specialist in the fields of gynecology and obstetrics. His testimony was to the effect that the various preparations under discussion were ineffective in the treatment of the several causative and accompanying conditions of amenorrhea and dysmenorrhea.

Hymes's attorneys are reported to have offered no medical testimony of any nature in support of their case. As a result the Solicitor for the Post Office Department, Judge Vincent M. Miles, recommended the issuance of a fraud order against the variously named companies and their officers and agents as such.

A typical Motex Co. advertisement.

In closing it is worth putting into the record the fact that this was not the first time that Hymes ran afoul of the fraud order department of the Post Office. In 1933 he was selling through the mails a preparation for the alleged restoration of "lost manhood" as well as a treatment "for the restoration of the menstrual flow delayed on account of pregnancy." When the postal authorities were about to issue a fraud order in this earlier case, Hymes executed an affidavit agreeing to discontinue his scheme. Hymes's lawyers made a similar attempt in the present case—an informal offer to the government to stipulate the discontinuance of the present scheme and thus avoid a fraud order issuance—but the Post Office authorities refused to accept the offer.

The Federal Trade Commission, on following up the complaint referred to at the top of this column, reported on April 6, 1940, that it had issued an order prohibiting the Western Refining Company, Lowell, Mass., also trading as The Motex Company and Cote Products Company, from making certain misrepresentations in the sale of Motex, Motex Pills and Cote Pills. Among these were that the products constitute safe, competent or scientific remedies for delayed menstruation, contain no harmful or dangerous drugs, and will have no ill effects on the body.

1. Sollmann, Torald: A Manual of Pharmacology, Philadelphia, W. B. Saunders Company.

Correspondence

MEETING OF INTERNATIONAL LEAGUE AGAINST RHEUMATISM

To the Editor:—We wish to correct an impression which seems to exist that the Ligue internationale contre le rhumatisme, which was to hold its seventh congress in America in the early part of the summer of 1940, has been permanently dissolved. The president of the league, Dr. Ralph Pemberton, and the chairman of the American committee of the league, Dr. Robert B. Osgood, feel that this is an entirely erroneous impression. The activities of the league have been temporarily suspended for the duration of the war, but we fully expect to hold the next congress of the league in America as soon after the war as such a congress would seem likely to be successful. Both the British and the American sentiment strongly favor the resumption of the league activities as soon as this is possible.

LORING T. SWAIM, M.D., Boston.

Secretary, American Committee of the Ligue
internationale contre le rhumatisme.

GRADING MILK IN NEW YORK CITY

To the Editor:—A letter printed in the March 2 issue (page 821) of THE JOURNAL and signed by Dr. I. Newton Kugelmass on the topic of "Grade A vs. Grade B milk in New York City" prompts the following statement intended to clarify the position of the New York City Department of Health with regard to the grading of milk in our city:

The department has had this matter under consideration for some time, feeling that the reasons for the adoption of milk grading in this city in 1911, when five different grades were established, no longer prevail today. At that time methods of milk production on farms, transportation and refrigeration facilities were somewhat primitive compared to those in operation today, and there was little commercial pasteurization of milk. The quality and the safety of the general milk supply were so questionable that it was necessary to grade milk according to its fitness for infants (grade A pasteurized), for adults (grade B pasteurized) and for cooking (grade C) in addition to "certified" and "grade A raw" milks.

Progressive advances in the sanitation and processing of milk during recent years have greatly improved the quality of the milk supply. With the advent of pasteurization of all milk, except certified, two of the original five grades, "grade A raw" and "grade C," have long since been abolished.

The primary function of a health department, as it concerns supervision and control of the milk supply, is the establishment of minimum uniform standards which will assure the community a safe and wholesome product. With this objective in view, it is deemed advisable now to consolidate grade A and grade B pasteurized milk into a single grade. We believe that this aim will be achieved by the standards to be set up for the proposed single grade of milk. There is no more reason today for the department of health to sponsor several grades of milk than there would be to provide in the sanitary code more than one standard of safety for the city water supply or many standards for the wholesomeness of other food products.

Studies of the records of the department of health and of the milk industry indicate that, during 1939, 90 per cent of the grade B milk producers in the milk shed delivered milk to country plants with less than 100,000 bacteria per cubic centimeter, this being the present grade A requirement, and over 90 per cent of the pasteurized milk samples had less than 30,000 per cubic centimeter, the standard for grade A pasteurized milk. The proposed requirements for all milk have been fixed essentially at a point more nearly consistent with the actual quality of grade B milk now supplied to New York City.

To the public the designation "grade B" connotes inferiority. This is entirely undeserved on the basis of the quality or safety of the grade B milk supply sold in this city. Because of this feeling, many families continue to purchase grade A milk when they could more profitably utilize the extra expenditures involved in purchasing larger quantities of milk, which, from a public health standpoint, would be much more desirable.

I feel confident that there is no public health significance in the difference between the present grade A standards and the proposed standards under consideration that will be applicable to all milk. The best proof as to the safety of our grade B milk supply is the fact that there is no record of a single outbreak of disease of milk-borne origin in New York City since pasteurization has been enforced. Furthermore, the diarrheal death rate for children has declined from 9.1 per thousand under 5 years of age in 1911, to 0.8 per thousand under 5 years of age in 1938.

Eighty-seven per cent of the city's milk supply is grade B milk. In providing more stringent legal standards for grade B milk, of which 90 per cent already meets the proposed standards, it is felt that the department of health is taking a progressive step in line with the action of many other large municipalities in this country.

WILLIAM H. BEST, M.D., New York.

Deputy and Acting Commissioner of Health.

MOTTLED ENAMEL

To the Editor:—Drs. G. V. Black and Frederick S. McKay, when they began an investigation of endemic mottled enamel in Colorado about twenty-five years ago (*Dental Cosmos* 58:129, 1916), started something which has provoked much discussion and genuine interest. The physical plight of mottled teeth is such as to cause both physicians and dentists to seek diligently for effective measures of prevention. The dentists are without means of restoring these teeth to normal. In order to eliminate an uncomely, often repulsive, appearance because of severely fluorosed front teeth, our dentist friends are forced to substitute porcelain crowns or artificial dentures for these malformed members. But, as has been pointed out by Dean and others (*Pub. Health Rep.* 54:862 [May 26] 1939), the incidence of caries in the mottled teeth is significantly lower than in normal teeth. Why and how does this occur? So far as I know, this is still an unsolved puzzle. Perhaps Atkins (*Dental Caries*, Chicago, American Dental Association, 1939) has offered a clue that merits some "follow-up" and "tracing down." This investigator was able to effect a reduction of slightly more than 85 per cent in the aciduric cell (yeast, *Bacillus acidophilus*, oral cocci) count of the mouth in a series of twenty cases (the percentage of reductions is not stated in Atkins's paper but was submitted to me later) by using, as a mouth wash, water bearing 5 parts per million of fluorine.

No restrictions of diet nor habits were imposed. Indeed, each was allowed all the sweets desired, which privilege some of the children enjoyed to the fullest. The only requirements were the careful brushing of the teeth immediately after each meal, followed by thorough rinsing of the mouth with water bearing fluorides in a concentration of 5 parts per million. Specimens of saliva for bacteriologic study were collected rather uniformly at about 4 p. m., never immediately following the prophylaxis of the mouth.

According to Hadley (*Quantitative Determination of Lactobacillus*, *J. Dent. Research* 13:415 [Oct.] 1933), Fosdick (*Northwestern University Bulletin on Dental Research*, Aug. 2, 1939) and others, caries susceptibility varies directly with the aciduric cell count level, i. e. a high count indicates a high degree of susceptibility and a low or negative count always means low susceptibility or complete immunity. If this is true, apparently

Atkins has pointed the way toward reducing the incidence of caries susceptibility by means of minute quantities of fluorine applied topically as a mouth wash without exposure of the patient to the hazards of mottled enamel.

MARVIN F. HAYGOOD, M.D., M.P.H.
State Health Department,
Des Moines, Iowa.

EFFECT OF EXTERNAL TEMPERATURE ON SEDIMENTATION RATE OF RED BLOOD CORPUSCLES

To the Editor:—In a recent issue of *THE JOURNAL* (Dec. 2, 1939, p. 2079) appeared a communication from Dr. A. S. Wiener with reference to the erythrocyte sedimentation test. He referred to unpublished observations in which he and his co-workers noted the effect of external temperature on the sedimentation rate.

As there is but little in the literature on this phase of the sedimentation rate, I refer to similar observations which were published in 1928 (Gordon, M. B., and Cohn, D. J.: *The Effect of External Temperature on the Sedimentation Rate of the Red Blood Corpuscles*, *Am. J. M. Sc.* 176:211 [Aug.] 1928). In our studies we divided each sample of blood into three parts and each portion was placed under a different temperature (10 C., 23 C. and 37 C.) and permitted to sediment at that temperature. In some instances, after the first test, the tubes were interchanged and retested at new temperatures.

We drew the following conclusions: "External temperature exerts an influence on the sedimentation rate of the red blood corpuscles. Higher temperatures accelerate the rate and lower temperatures diminish the velocity. Intermediate temperatures give intermediate results. All observations on the sedimentation test must be performed under properly controlled conditions with a standard known temperature. Seasonal variations showing the effect of extreme heat in the summer and of cold in the winter must be taken into consideration in the interpretation of results unless controlled by uniform standard experimental conditions."

MURRAY B. GORDON, M.D., Brooklyn.

CITRATE METHOD OF BLOOD TRANSFUSION

To the Editor:—In a recent letter from Buenos Aires (*THE JOURNAL*, March 2, p. 816) your correspondent stated that Agote, in November 1914, was the first to use sodium citrate in the transfusion of human blood. This statement requires correction. Seven months before Agote, Hustin (*Note sur une nouvelle méthode de transfusion*, *Soc. roy. d. sc. méd. de Bruxelles* 72:104 [April 6] 1914) used citrated blood, though in a strongly diluted form. As Hédon (*Note complémentaire sur la transfusion du sang citraté*, *Presse méd.* 26:57 [Jan. 31] 1918) pointed out, Hustin's method was really an infusion of strongly diluted blood mixed with sodium citrate and dextrose.

It was a curious coincidence that both Agote's (*Nuevo procedimiento para la transfusión del sangre*, *An. Inst. modelo de clin. méd.*, January 1915), and my (*A New and Greatly Simplified Method of Blood Transfusion*, *M. Rec.* 87:141 [Jan. 23] 1915) first publications of the new method of citrate transfusion occurred in the same month (January 1915) just twenty-five years ago.

Agote's article did not report any experimental work on the interesting problems involved in this question. He simply stated that he gave small transfusions of citrated blood (300 cc.) to two patients. His work left unanswered the question whether transfusions of average size (from 500 to 700 cc.) could be given with this method without causing toxic effects. Furthermore, he did not study the effect of anticoagulants on the coagulation time of the recipients. These questions were answered in my paper (January 1915) in which I reported in

detail about my experimental work, which had extended over six months. At the same time I reported two human transfusions of 300 and 500 cc. respectively.

I think that in fairness to all concerned it must be stated that citrated blood transfusion was originated contemporaneously and independently by Agote and myself.

I have always felt that the rapid popularization of the method and its extensive use in the World War was due to the fact that the careful experimental work which I reported in my first paper on this subject had put the method on a safe basis.

RICHARD LEWISOHN, M.D., New York.

STANDARDIZATION OF BLOOD PRESSURE READINGS

To the Editor:—The report by the Committee for the Standardization of Blood Pressure Readings of the American Heart Association (*THE JOURNAL*, July 22, 1939, p. 294) contains the following statement: "If the radial pulse is felt at a higher level than that at which the auscultatory sound is heard, the palpatory reading should be accepted as the systolic pressure; otherwise the auscultatory reading should be accepted."

The natural inference from this must be that if the auscultatory reading is higher than the palpatory, the former is correct. I wish to call attention to one important exception to this general rule: There are instances in which the heart beat is so violent that sounds are transmitted from the top of the cuff downward, so that they are audible below the cuff for 50, 100, 200 or more millimeters higher than the level at which the pulse comes through at the wrist. This is true in an occasional case of force aortic insufficiency with marked hyperactivity of the peripheral vessels. I have seen an instance in which a physician thought that the blood pressure was 200 or more in a girl aged 15 years. On careful examination I found that the pulse first appeared at the wrist when the blood pressure reading was 145, although clearcut sounds could be heard below the cuff at levels of 200, 250 and even 300 mm.; in fact, it would not have mattered how great had been the constriction in that blood pressure cuff, for the sounds were merely transmitted from above to below the cuff. In such cases the palpatory method is the only satisfactory one to detect the pressure level.

S. A. LEVINE, M.D., Boston.

GERIATRICS

To the Editor:—A recent communication was published in *THE JOURNAL* referring to the word geriatrics. I frequently read articles on this subject advising its study and suggesting that young men take it up as a specialty. So far as I know, no one has as yet announced himself as a geriatrist, and for a very good reason.

The analogy to pediatrics is basically unsound. The child has no objection to being a child and knows that he will soon get over it, while the oldster has been dreading old age all his life and knows that it will not only continue but get worse. He does not want to admit to himself or to any one else that he is growing old, and he would certainly be reluctant to go to a doctor who is specializing in old age and its ailments.

There are very few disorders that are strictly limited to old age, and the principal one, prostatism, is already in the field of genito-urinary surgery. The other degenerative diseases are properly problems for the internist. The field of internal medicine is already being split up into cardiology, gastro-enterology and hematology, and now the proposal is to segregate the aged. It seems as though rather than talking about preserving the status of the general practitioner there should be a movement started to keep the field of internal medicine intact.

PAUL W. KNISKERN, M.D., Grand Rapids, Mich.

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THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

FOOTBATH SOLUTIONS FOR RINGWORM

To the Editor:—I would appreciate authoritative answers to the following questions with regard to solutions to be used in foot pans or foot wells by bathers in going to and from the shower rooms and for the prevention of "athletic foot," or phytosis of the feet. 1. Which is to be preferred for its efficacy, calcium or sodium hypochlorite? 2. What strengths of each should be used to represent equivalent solutions? 3. What is the approximate amount of free or available chlorine that will be given by each? 4. What is the approximate or relative costs of the two per unit of available chlorine?

Richard K. Kimmel, M.D., St. Louis.

- ANSWER.—1. Sodium hypochlorite.
2. One per cent sodium hypochlorite and 2 per cent calcium hypochlorite.
3. Approximately 0.9 to 1 per cent of available chlorine corresponding to 1 per cent sodium hypochlorite or 2 per cent calcium hypochlorite.
4. Calcium hypochlorite is generally cheaper than sodium hypochlorite, depending on the source of supply, containers, transportation, and other factors. There have been no studies on the fungicidal or fungistatic capacity of calcium hypochlorite. It is more irritating to tissues than sodium hypochlorite and has the additional disadvantage of producing a deposit of lime (calcium hydroxide) as the free chlorine is given off. Sodium hypochlorite is conveniently purchased in metal chemical carboys in 20 per cent strength. This is diluted twenty to one for placing in footbaths and the solution should be changed every second or third day. The approximate cost per change should be about 10 to 15 cents, depending on the size of the footbath.

CYANOSIS AND HYPERTHYREXIA IN NEWBORN

To the Editor:—Recently I was called to see a baby at 2 p. m. which had been born without medical attention thirty-six hours before. To all appearances the infant was dead. I removed its clothing and during this handling it made a feeble effort to breathe. No action of the heart could be detected. The child was severely cyanotic. The body felt quite warm, so I placed a thermometer in the rectum, which registered 109 F. The procedure was repeated with the same result. I placed the infant in a tepid bath (water 102 F.) and injected four drops of epinephrine into the heart. In ten minutes the radial pulse could be felt and the child was breathing. However, it remained in a listless condition and made no effort to cry but opened its eyes many times. The night before it had been restless and had cried almost all the time, I was informed. When I left, an hour later, the infant had a temperature of 101 F. and was quiet. I informed the parents that the child would not live, because such temperatures as it had sustained were bound to produce irreparable damage of some kind. It died at 6 p. m. This is the first case of its kind I have observed. What could have happened? It could not have had any disease, and no disease could produce a temperature of 109 F. Could an injury to the brain during birth have caused chemical disintegration of such rapid process as to cause such a result?

T. H. Standlee, M.D., Mirando City, Texas.

ANSWER.—The data presented in this query are hardly adequate to present the basis for a definite opinion regarding the underlying conditions that would cause a 36 hour old newborn infant, cyanotic and stuporous, to have a temperature of 109 F. by rectum. A premature infant is an example of this malfunction of the heat regulatory mechanism. It has been noted in a large premature ward on hot summer days when the outside temperature readings of 95 to 100 were recorded that the premature babies in the ward all showed some degree of hyperthermia, rectal temperatures of 100 to 102 having been observed. Newborn infants who are too warmly swaddled may show a rise in temperature. A newborn infant smeared with goose grease and wrapped in woolen blankets showed a rectal temperature of 106 F. on a hot summer night. When a newborn infant is not offered sufficient foods by mouth a so-called dehydration fever may occur which is quickly relieved by giving adequate oral food. However, this condition would hardly account for the cyanosis noticed in the infant mentioned in the query. Among the pathologic conditions which may show hyperthermia to a considerable degree are miliary tuberculosis, malaria, brain injury, peritonitis, Still's disease and sepsis. The most probable cause in this case was a breakdown of the heat regulatory center in the medulla, possibly due to hemorrhage sustained at birth.

BLOOD COUNT IN SHOCK AND HEMORRHAGE

To the Editor:—Of what value is the blood count (particularly with reference to the white cell count and the differential) in determining the presence of internal (intra-abdominal) hemorrhage in recent abdominal injury in which there is shock and obscure abdominal signs? What may the blood count (white blood count and differential) be in traumatic shock alone?

Stanton S. Eddy Jr., M.D., Middlebury, Vt.

ANSWER.—This is a valuable and practical question but is difficult to answer in full authoritatively. It would seem to be an inviting subject for study in a large series of cases. It is probably impossible to distinguish between shock and hemorrhage by means of the blood picture alone, as leukocytosis may occur in both conditions. T. G. Orr (in Lewis's Practice of Surgery, volume 1, chapter 9, page 16) says: "Following severe trauma a leukocytosis as high as 20,000 or even higher may develop within one or two hours." The count rapidly diminishes. In shock there is a concentration of blood in the capillaries. R. L. Haden (personal communication) says: "I do not believe there is very much leukocytosis after shock which is not associated with hemorrhage. There is, of course, hemoconcentration with shock, and this is the explanation for the rise in the red cell count. With this there would necessarily be a slight increase in the leukocyte count, but this is only relative and not absolute."

After hemorrhage, leukocytosis develops rapidly. Castle and Minot (Pathologic Physiology and Clinical Description of the Anemias, London, Oxford University Press, 1936, p. 26) say: "Within ten minutes after a considerable hemorrhage the blood platelets in circulation will be found increased and the coagulation time of the blood shortened. Almost as rapid is the leukocytosis due to an outpouring of young granular leukocytes. This effect reaches its maximum in two to five hours. . . . With rapidly repeated hemorrhages producing extremely severe anemia, the white cells may reach 35,000 per cubic millimeter." Whitby and Britton (Disorders of the Blood, ed. 2, Philadelphia, P. Blakiston's Son & Co., 1937, p. 82) say: "A great loss of blood is followed by a moderate neutrophil leukocytosis, which appears within a few hours." The eosinophil count diminishes. These authors say that "if the hemorrhage occurs into one of the serous cavities, or into the meninges, or into a joint, a leukocytosis of from 18,000 to 30,000 cells per cubic millimeter is to be expected." The leukocyte count is maximal in about ten hours and lasts three or four days. In progressive hemorrhage there is, of course, a decrease in the concentration of red blood cells and hemoglobin.

The following references also should be consulted:
Blalock, Alfred: Trauma; Occupational Diseases and Hazards; Shock and Hemorrhage, *Bull. New York Acad. Med.*, 12: 610 (Nov.) 1936.
Boyers, L. M.: Shock: A Study of the Partial Available Modern Literature of Shock, *Am. J. Surg.* 36: 623 (June) 1937.
Harkins, H. N., and Roome, N. W.: Concealed Hemorrhage into Tissues and Its Relation to Traumatic Shock, *Arch. Surg.* 35: 130 (July) 1937.

PAINFUL PARESTHESIAS AFTER TRIGEMINAL ROOT RESECTION

To the Editor:—A woman aged 68 had a complete resection of the trigeminal nerve root performed six months ago for neuralgia of the first and second branches of the fifth nerve. Since the operation she has been experiencing continuous severe discomfort over the entire portion of the face and eye rendered anesthetic. These sensations are described as burning, tearing, pulling, sticking, coldness and the like and are in no way similar to the pain experienced prior to operation. The patient has never before displayed any neurotic tendencies. Sedation, analgesics, heat and suggestion have proved of no avail, and time has shown no tendency to effect a cure. The patient is my mother and I am at a complete loss as to what else I can do to relieve this terrible discomfort she is unquestionably suffering.

M.D., New York.

ANSWER.—So-called painful paresthesia in the anesthetic area following resection of the trigeminal sensory root for major trigeminal neuralgia is not, unfortunately, a rare condition. A search through the literature for the cause and an adequate treatment of this disturbing postoperative condition, as well as experience in a large series of cases, does not reveal an adequate answer to the question here asked. This condition is most likely to occur in patients of or past middle age, and it makes its appearance a few weeks after the operation when the initial effects of sudden relief from pain and sudden facial anesthesia are past. It is most often seen in patients who lead a leisurely life with no definite occupation and who have time to take notice of their complaint. It is seldom complained of by a busy housewife, a hard working laborer or any person engaged in enjoyable time consuming pursuits. Though the case in question would not seem to be on a psychoneurotic basis, it is frequently true that psychotherapy helps such patients. One must make certain too that the original disturbance was a true major trigeminal neuralgia and not an atypical neuralgia or peculiar type of head

pain. This painful complex has occurred in cases in which a partial root resection has been performed with preservation of the ophthalmic division and a second operation, with resection of the remaining fibers, has not stopped the severe discomfort. It has been assumed that the disturbance is due to a lesion in the nucleus of the fifth nerve, nutritive in nature and based on localized arteriosclerotic changes or hypertension. Some hold the optic thalamus responsible for the painful sensations. Theoretically, section of the fibers between the fifth nucleus and the thalamus would stop the pain, but this is impossible at present for all practical purposes. Cervical sympathectomy has been done in some cases with temporary relief or permanent partial amelioration of the pain. Drugs, rest, change of occupation and ordinary suggestion do not help in the majority of cases. The condition is conceded to be intractable; the cause is unknown and a satisfactory treatment is lacking. The following references are suggested as a source of information on this subject:

Lewy, F. H., and Grant, F. C.: Physiopathologic and Patho-Anatomic Aspects of Major Trigeminal Neuralgia, *Arch. Neurol. & Psychiat.* 40: 1126 (Dec.) 1938.
Olivecrona, Herbert: *Acta chir. Scandinau.* 82: 99.

CRYSTALLIZED VIRUS—BOOKS ON VIRUSES

To the Editor:—I have been told that Stanley, of the Rockefeller Institute, has extracted the virus of tobacco leaf mosaic disease and finally reduced it to a pure state and that this final pure state is a crystal. It is as dead as a crystal of table salt or, for that matter, a brickbat. If a crystal of this is placed on a healthy leaf, the leaf becomes infected and the disease then spreads through the whole field of tobacco which was formerly free from it. Having reproduced itself thus greatly, it can be extracted from the newly diseased leaves in quantity and again reduced to the pure crystalline state, which is as dead as ever. Is this description essentially correct? If so, is it not a truly colossal discovery in biology and especially important to medicine? Why has it not received the Nobel prize? 2. Please give me the names of three or four books giving the latest and most up-to-date information on viruses: not books which are too technical and difficult and written for specialists, but books such as would be satisfactory for the average physician.

J. A. McKay, M.D., Mercer, Pa.

ANSWER.—1. Dr. W. M. Stanley crystallized the virus of tobacco mosaic in 1935. The crystals are considered to be chemically pure. When the crystalline material is in solution it is capable of producing a disease in tobacco plants which is transmissible in series from plant to plant. This is a discovery of great biologic significance. As yet, however, no consensus has been reached concerning the nature of the crystalline material. It has many of the properties of living agents and some of the characteristics of large molecules. Certain workers, in spite of the crystalline nature of the virus, believe that it is alive, while others consider it an inanimate material reproduced by processes of autocatalysis.

2. Two books regarding viruses and virus diseases suitable for the medical profession in that they are not too technical are "The Lane Medical Lectures: Viruses and Virus Diseases," by Thomas M. Rivers, M.D., published by the Stanford University Press, Stanford University, Calif., 1939, price \$1.75, and "Virus and Rickettsial Diseases with Especial Consideration of Their Public Health Significance," by a group of scientists in the Harvard Medical School, published by the Harvard University Press, Cambridge, Mass., 1940, price \$6.50.

"SEKOV" OBESITY CURE

To the Editor:—A pamphlet describes a weight reducing cure called "Sekov." I know several patients who have lost from 30 to around 100 pounds within one to two years. Is there anything in this medication which would be dangerous or could it be taken under medical supervision, controlled by blood pressure, basal metabolism and the like?

M.D., California.

ANSWER.—The weight reducing "cure" referred to was tested by the Los Angeles Health Department in August 1936 for dinitrophenol, but the sample tested was not found to contain any of this substance, and the report of that department quoted two formulas which it said were supplied by a saleswoman for this item ("Sekov") and which are as follows:

- No. 1.—Thyroid $1\frac{1}{2}$ gr.
Big pill whole Pit. 1 gr.
Ovar. 3 gr.
R $\frac{1}{2}$ is $\frac{1}{2}$ of No. 1. Digitalis $\frac{1}{2}$ gr.
No. 2.—Rhubarb root 2 gr. Cascara Sagrada 1 gr.
Aloin $\frac{1}{16}$ gr. Asafetida $\frac{1}{2}$ gr. Oleoresin-ginger $\frac{1}{16}$ gr.
T. $\frac{1}{2}$ size. Digitalis $\frac{1}{2}$ gr. Thyroid 2 gr.
P. $\frac{1}{2}$ size. Whole Pit. 2 gr. Thyroid 1 gr.
O. $\frac{1}{2}$ size. 2 gr. Ova. whole. 1 gr. whole Pit.

If these formulas were true statements of composition and the composition of the item has not been revised since that time, it is perfectly obvious that the effects of taking these pills will naturally result in the reduction of weight in many cases. It goes without saying that self medication with such substances

as thyroid, pituitary, ovarian extracts and digitalis is contrary to the best interests of the patient. If it is advisable for the patient to reduce, he should use only such drugs as are prescribed by the physician on the basis of his examination and as modified according to the effects produced. This item is just one more example of the fact that "obesity cures" are either composed of ineffectual ingredients or else they contain drugs which, although they produce the desired effect, should not be used in self medication.

The following information was released by the Federal Trade Commission on Feb. 19, 1940:

"The U. S. District Court for the Southern District of California has issued a preliminary injunction upon petition of the Federal Trade Commission, forbidding Sekov Corporation, and Edwin W. Vokes and Hazel Ruth Vokes, officers of the corporation, and as individuals trading as Sekov Reducing Studios, all of 6404 Hollywood Blvd., Hollywood, Calif., from further dissemination of false advertising pending issuance of a complaint by the Commission under its regular procedure and until final disposition thereof.

"It was alleged that the preparations advertised and sold as 'Sekov Reducer' and as 'Sekov,' and represented to be safe, competent and scientific treatments for obesity, contain drugs which, if used as prescribed in advertisements of the defendants or under conditions that are customary or usual, might result in serious or irreparable injury to the health of users."

IODIZED POPPY-SEED OIL FOR ASTHMA

To the Editor:—Can you give me any information regarding the treatment of bronchial asthma by intratracheal injection of iodized oil as reported in the *New York State Journal of Medicine* 36: 1151 (Aug. 15, 1936) by Dr. William Anderson?

J. M. Greenhouse, M.D., St. Louis.

ANSWER.—The early reports on the use of iodized oil for the treatment of bronchial asthma were for the most part favorable:

- Pritchard, Stuart; Whyte, Bruce, and Jordan, J. K. M.: Use of Iodized Oil in Diagnosis and Treatment of Bronchial Affections, *The Journal*, April 10, 1926, p. 1119.
Ochsner, Alton: Bronchography Following the Passive Introductions of Contrast Media into the Tracheobronchial Tree, *Wisconsin M. J.* 25: 544 (Nov.) 1926.
Ochsner, Alton: An Unappreciated Cause of Chronic Bronchitis, *The Journal*, July 20, 1929, p. 188.
Taylor, J. H.: Treatment of Asthmatic Bronchitis with Iodized Oil, *Minnesota Med.* 15: 408 (June) 1932.
Fink, L. W.: Lipiodol as Therapeutic Agent, *ibid.* 15: 522 (Aug.) 1932.
Cole, D. B., and Harper, Edgar C.: Therapeutic Use of Iodized Oil in Pulmonary Disease, *J. Lab. & Clin. Med.* 18: 704 (April) 1933.
Alison, J. F.: Treatment of Asthmatic Bronchitis with Iodized Oil, *South. M. J.* 26: 696 (Aug.) 1933.
Ambersson, J. B., Jr., and Riggins, H. M.: Lipiodol in Bronchography: Its Disadvantages and Dangers and Uses, *Am. J. Roentgenol.* 30: 727 (Dec.) 1933.

Its good results have been ascribed both to a presumed bactericidal effect and to mechanical upward displacement of bronchiolar plugs by the iodized oil. William Anderson (Some Observations on the Value of Intratracheal Injections of Iodized Oil for Bronchial Asthma, *J. Allergy* 4:44 [Nov.] 1932; The Treatment of Bronchial Asthma by Intratracheal Injections of Iodized Oil, *New York State J. Med.* 36:1151 [Aug. 15] 1936) and Balyeat (Balyeat, R. N., and Seyler, L. E.: The Therapeutic Value of the Intratracheal Use of Iodized Oil in Bronchial Asthma, *Journal-Lancet* 54:563 [Sept. 15] 1934. Balyeat, R. M.; Seyler, L. E., and Shoemaker, H. A.: The Diagnostic and Therapeutic Value of the Intratracheal Use of Iodized Oil in Cases of Intractable Asthma, *Radiology* 24:303 [March] 1935) have been especially enthusiastic and report large numbers of cases with excellent results.

In other hands, however, less favorable results have occurred. In an article which summarizes forty cases of intractable asthma, L. H. Crip and J. W. Hampsey (*J. Allergy* 9:23 [Nov.] 1937) state that improvement occurred in only four; the remaining thirty-six were failures. In addition, these authors collected 267 other cases treated by sixty-four men prominent in the fields of allergy and otolaryngology. Cures were obtained in only 1.9 per cent of these and improvement in 24.7 per cent; there were 73.4 per cent of failures. Two thirds of these specialists have discontinued the use of iodized oil because of poor results.

Most specialists in this field are now agreed that iodized oil should be tried only in those cases in which asthma continues after skillful allergic management has been given a thorough trial, this to include a careful history and physical examination, complete cutaneous tests and treatment along allergic lines for not less than from six to twelve months.

There are two commonly used methods of instilling iodized oil. It can be given directly by tracheal cannula, nasal tube or bronchoscope or by dropping the oil on the back of the tongue while the tongue is pulled forward and the patient breathes

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rapidly; the latter method can be easily carried out in most cases without local anesthesia.

Iodized oil remains in the bronchioles for varying periods and should not be used for patients who are sensitive to either iodine or poppy-seed, the oil of which is usually the vehicle for the iodine. Recently Balyeat himself (*Balyeat Hay Fever and Asthma Clinic Quarterly* 9:2 [Nov.] 1939) seems to have become less enthusiastic.

DIAGNOSIS OF HEADACHES

To the Editor:—A white man aged 50 has been subject to severe migrainous attacks on the left side for the past twelve years. He never vomits but feels nauseated, has a tendency to sneeze and experiences a "stiffness" in the left nostril. The left temple is tender but the carotid areas are not. Alcohol will quickly precipitate an attack. There is a family history of migraine but no personal allergy. The headaches are not relieved by ergotamine tartrate or epinephrine (never given intravenously). Treatment with histamine as recently outlined by Horton for "vascular headaches" has been apparently of no avail. The patient resorts to considerable morphine in order to obtain relief. I do not believe he is addicted. He was recently studied in a nearby clinic and desensitization to a number of allergens was suggested and tried with little or no result. Extensive laboratory tests including Kahn, Wassermann, skull roentgenograms and blood chemistry were negative. A devitalized left second molar was found. His basal metabolic rate was minus 16. Thyroid therapy did not seem to help. Physical examinations, including neurologic, have always been essentially negative. His blood pressure is 100 systolic, 60 diastolic. Within the past month he has had many attacks of severe substernal pain without severe dyspnea. At times his headache will cease abruptly and the chest pain start and vice versa. This has strengthened a previous opinion that the chest pain is "migraine." Roentgenograms of the chest are negative. The heart seems normal. What suggestions can you offer as to diagnosis and further management?

J. Paul Proudfit, M.D., Washington, Pa.

ANSWER.—With headache on the left side occurring in a person who has a family history of migraine but whose headaches are not relieved by ergotamine tartrate, a diagnosis of migraine cannot be confirmed without further information. On the other hand, if compression of the left temporal artery significantly alters the headache during an attack, ligature of this artery are indicated. It would be advantageous to know the effect of 1 cc. of ergotamine tartrate given subcutaneously at the onset of an attack or the result of half this amount by which one would hesitate to call "migraine."

The substernal pain complained of is a rare occurrence, and treatment by inhalation of 1 per cent ephedrine in physiologic solution of sodium chloride is also to be recommended. The use of capsules containing $\frac{3}{8}$ grain (0.024 Gm.) of propranolol and $\frac{1}{250}$ grain (0.00022 Gm.) of atropine sulfate is sometimes also effective.

The hypotensive factor might be attacked by the use of from 5 to 20 mg. of benzodrine sulfate daily.

If therapy directed toward nasal congestion and sinus occlusion is ineffective, as it may well be in this case, attention should be centered on means of proving involvement of the left temporal artery as the cause of the pain (Graham, J. R., and Wolff, H. G.: Mechanism of Migraine Headache and Action of Ergotamine Tartrate, *Arch. Neurol. & Psychiat.* 39:737 [April] 1938).

A paper entitled "Precordial Migraine" by Thomas Fitz-Hugh Jr. appeared recently in *International Clinics* (1:141 [March] 1940).

EFFECT OF FREEZING AND COOKING ON VIRULENCE OF PASTEURILLA TULARENSIS

To the Editor:—I am frequently asked about tularemia and should like on answer to the following questions: 1. Does freezing of the rabbit as is done in the commercial lockers minimize the danger of tularemia? 2. Is cooking or frying the meat until the color changes to gray sufficient to eliminate all danger of tularemia?

ANSWER.—1. At the third International Congress for Microbiology, held in New York Sept. 2 to 9, 1939, Dr. Edward Francis of the National Institute of Health, U. S. Public Health Service, Washington, D. C., made the following statement with regard to the freezing of rabbit carcasses, unutilized except for removal of stomach and intestines at the moment of death, were immediately frozen at -14°C . and thereafter kept continuously at that temperature without thawing. At six month intervals, tissues of the rabbits were tested for survival of infection by injection into guinea pigs. Virulent organisms of *Bacterium tularensis* [Pasteurella tularensis] survived forty-two months in spinal cord, thirty-six months in brain, eighteen months in spleen, twelve months in muscle and liver, and five months in bone marrow. Heart blood of guinea pigs, drawn in half cubic centimeter amounts, into glass pipets which were then sealed at each

end and kept continuously at -14°C , was found virulent when tested at six month periods up to twenty-four months but not longer.

"A culture of *Bacterium tularensis* was frozen in a block of carbon dioxide snow at -56°C . and was fully virulent when thawed, i. e. it survived a temperature of about 70 below zero Fahrenheit."

2. Thorough cooking will destroy the organism in infected tissues. Exposure to from 56 to 58 $^{\circ}\text{C}$. for ten minutes will kill *Pasteurella tularensis* in cultures and in splenic tissues. The cooking of infected rabbit meat which permits red muscle or red juice to remain near the bone does not kill virulent *Pasteurella tularensis*.

HEMOGLOBIN COLOR SCALES

To the Editor:—I have before me a Feosol hemoglobin scale (improved Tollqvist) and an improved hemoglobin scale put out by Amsco Products, and there is a tremendous difference in the shades, particularly in the range from 20 per cent to 60 per cent. Can you tell me which is correct and, if neither, what scale one can get that is approximately correct?

Carl R. Doten, M.D., Providence, R. I.

ANSWER.—Most hemoglobin color scales of the Tollqvist type, including the Amsco scale, have much lighter shades of color than the Feosol hemoglobin scale in the range between 20 and 60 per cent. A check with blood samples of known hemoglobin concentration in the lower ranges reveals that the Feosol scale is approximately correct, whereas the readings on the Amsco scale are too high. The most that can be expected of any Tollqvist scale is an approximation of the true hemoglobin value. The Sahli-Hellige hemometer and the Haden-Hausser hemoglobinometer are relatively inexpensive and give accurate results.

"GATCH" OF HOSPITAL BED

To the Editor:—We have been having some discussion as to just what the term "Gatch" means when used in connection with hospital beds. Does it refer to the frame which makes possible the change of position, to the spring itself or to both?

J. Howard Beard, M.D., Urbana, Ill.

ANSWER.—The term "Gatch" used in connection with hospital beds refers to the bed bottom or frame that is supported by head and foot pieces. It includes the frame and the mechanically operated spring parts. This type of frame and spring or bed bottom has also been designated by some manufacturers as the "Mount Sinai" bed bottom. Various other designations are also used in other equipment catalogues.

CONTINUED USE OF SACCHARIN

To the Editor:—A person with a tendency to overweight desires to reduce the number of calories ingested. Need any harm be anticipated if he habitually uses saccharin instead of sugar in sweetening tea and coffee? The amount of saccharin used is about $1\frac{1}{2}$ grains (0.1 Gm.) daily.

M.D., Connecticut.

ANSWER.—Investigations of saccharin have failed to show any harmful effect except in extremely large doses. There seems to be no reason why saccharin may not be continued in average sweetening doses for an indefinite period. In fact this has been done by many diabetic patients without any noticeable effects.

STERILIZATION OF OBSTETRIC INSTRUMENTS BY AUTOCLAVING

To the Editor:—Does it remove the temper to sterilize obstetric forceps and craniotomy instruments in an autoclave? How long would the instruments be sterile if wrapped in several layers of muslin?

Richard Torpin, M.D., Augusta, Ga.

ANSWER.—The reasons for not autoclaving delicate sharp-cutting instruments such as scalpels, cataract knives or even scissors would seem not to apply to the sterilization of obstetric forceps and craniotomy instruments. Any loss of temper due to repeated autoclaving would probably not interfere with the purposes for which these instruments are used. If wrapped in a sufficient number of layers of muslin and then autoclaved and the steam evacuated at the end of autoclaving so that the package is dry, these instruments should remain sterile indefinitely.

LOCAL REACTION TO VACCINE

To the Editor:—In The Journal, January 13, page 182, the reply to the query as to the causes of local reactions from a toxin vaccine does not mention the usual reason in the case of vaccines prepared as described. This is the acid reaction developed in the vaccine medium, which should be corrected by titration with a sterile sodium hydroxide solution. The reaction due to hypersensitivity to bacterio or medium proteins can be reduced or eliminated by reboiling the vaccine to subdivide the protein molecule.

K. P. A. Taylor, M.D., Panama.

Council on Medical Education and Hospitals

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

Thirty-Sixth Annual Meeting, held in Chicago, Feb. 12 and 13, 1940

(Concluded from page 1485)

DR. ROY B. HARRISON, New Orleans, in the Chair
THE FEDERATION OF STATE MEDICAL
BOARDS

FEBRUARY 13—MORNING

The Refugee Physician

DR. JOSEPH PRATT, Boston, and DR. IRVING GRAEF, New York: The recent immigration of foreign physicians has created problems which require candid discussion and a thorough exploration, since they affect our community and the immigrants who are to become new citizens in it. The National Committee for Resettlement of Foreign Physicians, which I represent with its affiliated committees in different states began its functions on Feb. 1, 1939, and has tried to work out a constructive and mutually beneficial program to solve the problems presented by the refugees. Our central office has registered 1,646 foreign physicians who immigrated to the United States between 1933 and Jan. 1, 1940. We know that between 800 and 900 additional refugees had become more or less established in institutional work or in practice prior to our registration. Numerically the refugee physicians do not constitute a group of indeterminate size, and since wartime conditions and other countries are absorbing the remainder, the reservoir for continued immigration is empty, or nearly empty.

Our committee contends that as long as those who have come are bona fide legal immigrants who have taken out their first papers, they are entitled to fair consideration as future citizens, in accordance with the traditional United States policy. The problems created in the ports of entry, such as New York, are becoming acute. Primarily the tension has increased because there are only four states left where only naturalization papers are required before taking the licensing examinations. These are Massachusetts, Connecticut, New York and Maryland, and they are the states that are least in need of more physicians. Illinois has admitted to examination those who have had one year's internship or its equivalent in an American hospital in addition to first papers. Ohio admits older men, if naturalized, to examination but requires thirty hours of collegiate training in America of men graduated after 1920. In New York City there are between 1,300 and 1,600 foreign physicians, of whom from 950 to 1,000 are still unlicensed and are preparing for examinations. Our primary aim is to promote settlement only in districts actually short of physicians. There is evidence that whole counties in some states are without a single resident physician. Here is an opportunity to promote the medical welfare of those in need of it and at the same time to enrich rural life with the cultural resources of many of the émigré physicians.

In less than one year this committee and affiliated groups have resettled about 400 refugees, and we have been most favorably impressed with their assimilability and their warm acceptance by the committees or institutions in which they have settled.

A branch of this committee in New York City has set up twenty examining boards in as many specialties. They have interviewed 300 of the registrants in consideration for placement when and if opportunities arise. These boards are composed of nonsectarian groups of prominent physicians and specialists who have certified the qualifications, or the lack of qualifications, after suitable interviews, sometimes supplemented by clinical examination, with the émigré candidate.

The sectarian proportions among our registrants are approximately 25 per cent Christians (of these two thirds are Catholic and one third Protestant) and 75 per cent Jews. About 120 men have been settled in rural New York and we have yet to hear a complaint. Men have been settled in rural Ohio and in rural parts of Illinois, New Jersey, Massachusetts, Mary-

land, Connecticut and a few in other states. It is gratifying to learn of their cordial reception. Interns have been placed in hospitals in Virginia and North Carolina and other less populous states and we have evidence of their successful adjustment.

The chief problem in the resettlement of émigré physicians is the demand in twenty-eight states that they become citizens before admission to licensing examinations. A five year penalty of economic destitution and probable professional deterioration is thus imposed on most of these people. The requirement of full citizenship causes great hardship to the well trained foreign physician. It compels continued concentration in a few cities and aggravates the situation of the local profession. Where the intention to become a citizen is a requisite qualification for licensure—and we believe it should be—it seems unnecessary to bar or delay these persons from fulfilling their functions if they can pass qualifying examinations. The double requirement of internship in a class A American hospital together with graduation from an American medical school in some states is precluding the licensure of worthy émigrés in those states even though there are vacancies and opportunities for internship or rural practice in the same states. According to a study made recently by the Association of American Medical Colleges there are a great number of approved internships in the United States unfilled because of an insufficient number of native graduates. I believe that if these internships are made available, refugee physicians should be required to take a one year's appointment before appearing before a state licensing board. Hospital intern staffs would become more complete and the émigré would learn American methods. If he did good work he would then have the recommendation of the staff. If he did poorly, the National Committee for the Resettlement of Foreign Physicians would be willing to deal with his case and promote retraining in some other occupation.

Inter-American Relations in Medical Education and Licensure

DR. WALTER L. BIERRING, Des Moines, Iowa: About 600 educators representing all sections of the United States met in Washington Nov. 9 and 10, 1939, under the auspices of the Division of Cultural Relations of the Department of State to explore the possibilities of increasing the interchange of educational interests among the American republics. I will present an outline of the discussions with regard to medical licensure.

In the twenty-one Latin-American republics to the south of us there are forty-nine medical schools: Mexico has eleven, Cuba, Haiti and the Dominican Republic have one each, Nicaragua has two, Guatemala, Honduras and El Salvador have one each, Brazil has nine, Argentina four, Chile three, Colombia three, Ecuador three, Bolivia two and Venezuela two, and Dutch Guiana, Paraguay, Peru and Uruguay have one medical school each. There are no medical schools in Costa Rica or Panama.

The admission requirement to a medical school is almost universally the completion of the secondary school course, with either a maturity certificate or a bachelor's degree in science or letters. The medical course varies. The eight Mexican schools require five years with an additional practical year, Cuba seven years. Of the four Central American schools, six years is required in Nicaragua and El Salvador, while in Guatemala and Honduras the course is seven years. The seven schools in Brazil require six years for the degree of doctor of medicine. The four schools in Argentina are divided, two having six year courses and two requiring a seven year course. Several of the medical schools are more than a hundred years old, and practically all are patterned after the older medical institutions of Europe. Instruction is chiefly by lecture and demonstration. By reason of large student bodies in Latin American universities, bedside teaching is precluded to a large extent. There is consequently greater emphasis on didactic teaching, the amphitheater clinic and outpatient teaching. Competent observers state that this is exceptionally fine in the various university departments. Foreign medical graduates, including those from the United States, are required in all the Latin-American republics to have their diplomas revalidated through official channels and further required to pass a complete examination, written and practical, successfully in the language of the country before being granted a license to prac-

tice. In a letter Dr. Hugh S. Cumming, director of the Pan-American Sanitary Bureau, Washington, D. C., said "There is evidence of a general desire in all Latin-American countries to tighten laws governing the practice of medicine in order to restrict as much as possible entrance of foreign graduates, especially from Europe. In fact, there is quite a demand for the abrogation of reciprocity treaties, even with neighboring countries. On the other hand, the authorities, led by humanitarian reasons, have recently in a number of cases let the bars down to physicians from Europe. In Mexico over 100 Spanish physicians have been allowed to enter in the last two or three years. Complaints have arisen in this case since these physicians were supposed to devote themselves exclusively to the care of their countrymen affiliated with a Spanish welfare association and a number of them have apparently engaged in private practice."

In comparing the standards of medical education and licensure in this country with those existing in the Latin-American republics, one can foresee a similar difficulty in establishing treaties or agreements of reciprocity in medical licensure between the United States and the republics south of the Rio Grande. The consensus expressed at the Washington conference was the need of a better mutual understanding of methods of procedure and knowledge of the opportunities available for medical education on the part of the United States and the twenty-one Latin-American republics. The greatest difficulty is the lack of a thorough knowledge of another language.

There are many opportunities in medical education available for interchange of students, fellowships and lectureships. The conference presented the following recommendations:

1. That a study and analysis of medical education, medical schools and research institutes in the Latin-American republics be undertaken, largely for the purpose of comparison with existing educational conditions in the United States.
2. That reciprocal exchanges of biblio film between medical libraries in the American republics be undertaken, and that similar loan collections be exchanged between the Army Medical Museum and museums in the other American republics.
3. That information on medicine, nursing, public health, dentistry and sanitary engineering be collected and exchanged through summaries of literature of the American republics.
4. That public health education of general teachers in the other American republics be encouraged.

Some Social Implications of the Licensure Program

FRANCES P. DE LANCY, PH.D., Morgantown, W. Va.: The immediate aim of professional licensure is to guarantee a minimum standard of ability and practice. Indirectly, however, licensure tends to limit the number of practitioners, to regulate competition and to invest the profession with a greater or lesser degree of social prestige. This scheme of professional licensure has produced certain commendable results. It has placed the solution of scientific problems in the hands of technical experts, has produced a relatively effective method of administration and has assured the public of a better qualified practitioner.

Along with these great reforms have arisen certain social problems. There has been some justifiable criticism of methods used in selecting students. The medical profession has recognized this danger and has spent much time attempting to keep its selection methods adequate. In outlining prescribed courses there has been a tendency to regiment students into a single groove. While there is an appreciable measure of accuracy in the Moss aptitude tests, there is still a large group inside as well as outside the medical profession which is skeptical of excluding men from medical colleges on the basis of this test. In addition to being excluded on the basis of ability, potential candidates have been turned away from medical schools because equipment is not adequate to handle more. The associations have frequently sought to remedy this by reducing the number of students rather than by attempting to secure funds with which to buy equipment. Some have indicated that these barriers were intended to limit the supply of professional men. Oversupply, however, is not entirely due to overcrowding but rather to an abnormal underconsumption. The average well trained medical man is too busy. Most professional men would be delighted to divide their work, but they are not willing to divide their pay. It would seem logical to spend additional

effort in making possible the consumption of professional services rather than in curtailing the supply.

When one extends this picture of professional licensure to other professional groups there is created a social system in which ambitious and qualified youth are unable to find intellectual employment. They become discouraged and disillusioned. These rejected medical candidates—some 5,000 to 6,000 annually—constitute a strong nucleus for reform. They maintain that if present day society cannot absorb them, then society must be changed. The more disillusioned youth are turned away, the sooner will follow the organization of some political movement which promises radical changes to assure them of a right to live and work. The American professional associations might ward off this crisis to some degree by several weapons. In the first place there can be the continued improvement of the educational program along lines which will produce the best possible professional men and at the same time assure the greatest degree of fairness to all classes and minority groups. Second, there might be an extension of a system of professional scholarships whereby persons who are capable may enter a field regardless of their economic status. Third, rather than further limit the supply of professional men there could be an increasing emphasis on discovering new needs for professional services. Fourth, the associations could help break down the ridiculous "white collar complex" by which Americans feel that life is a failure unless they are members of a professional class. Society generally needs farmers, coal miners, milkmen, cooks and scrubwomen just as badly as it needs doctors. The professional man will be expected to adjust educational philosophies and policies in order to produce a different interpretation of values.

Another social problem arising from this system of monopolistic licensure is that of making professional services available to those persons who desire them. The masses would like to have these services but cannot pay for them. The public is inclined to hold associations responsible for this situation. To say that the American medical profession has done better at supplying its service than the medical groups of any other country does not answer the question. It so happens that American standards of living generally are higher than those of most European countries. Most Americans admit that medical science has developed to perhaps a higher level in this country than in any other country. They recognize that the American medical profession has done much to relieve suffering, but they also feel that present facilities could provide much more service than is now being given.

The Advisory Council on Medical Education

DR. WILLARD C. RAPLEYE, New York: The Advisory Council on Medical Education was created to meet the need of a central agency to help coordinate the efforts of various organizations concerned with the different phases of medical education. Since its organization the Advisory Council has been studying three phases of medical education: college preparation for professional study, the internship, and interstate endorsement of licensure. Students are preparing for medical studies in about 800 different colleges and universities. These institutions are baffled by the wide variations in the requirements of different medical schools. As a true success of a physician is determined by his character, personality, industry, initiative, resourcefulness and judgment quite as much as by his technical knowledge, the selection of students for medical study should be based on these qualities.

The college period should be devoted to general rather than largely scientific education. The only college subjects in which every medical student needs some basic knowledge are chemistry, biology and physics. They serve as an introduction to scientific methods and thought and, when well presented, provide the elementary tools of objective, quantitative study now so important in every medical field.

Recognizing the widening public, cultural and educational interests of medicine, the Advisory Council on Medical Education recommends to the Association of American Medical Colleges, the Association of American Universities and the Association of American Colleges that the college preparation for medical studies above the necessary grasp of the fundamental principles of biology, physics and chemistry should be

devoted to general education rather than additional forms of preprofessional education.

The problems of the internship have been studied by numerous bodies in recent years. There is a growing disposition to regard this period of hospital training as a part of the basic medical training and as such to place on medical faculties cooperating with the hospitals a larger responsibility for the guidance and approval of that hospital experience. The relationship of the internship to licensure is of great importance. A few states have adopted regulations which seriously hamper the development of a sound educational program in the internship. A number of questions related to this problem need to be explored. As the internship is now universally regarded as a part of the basic preparation for the practice of medicine, the Advisory Council on Medical Education recommends to the Federation of State Medical Boards that an internship of not less than twelve months and of satisfactory educational content be required for admission to the state licensing board examinations in all states.

The new Advisory Council on Medical Education is dedicated to the sole purposes of preserving and promoting adequate standards of medical education at its several levels through helping to bring about cooperation among existing organizations and agencies. It is endeavoring to bring about integration of the entire program of medical education in this country by common action through "peaceful persuasion in a reasonable manner."

DISCUSSION

DR. WALTER L. BIERRING, Des Moines, Iowa: We should remember, from what Dr. Pratt said, that the committee now in charge of the distribution of refugee physicians is different from the committees that were formed earlier, when racial characteristics evidently prevailed. I join in his appeal for a more charitable interpretation of the citizenship clause; perhaps some form of temporary license or probation period should be granted to a refugee physician so as to determine his fitness. There is reason to look on the situation in a little different light now from that of some years ago. I agree that the state licensing boards should have better control or at least should be more generally interested in the intern service and that there should be some standard of general intern service that can be approved by all boards. If the principle of reciprocity or interstate endorsement is to prevail, it should be on the basis of the certifying examination. No matter if the examination is the equivalent, is as exhaustive and as comprehensive as the examination required by the act prevailing in the state, there should be no difficulty at this time, when medical training has reached that more or less uniform stage, of bringing about interstate endorsement.

DR. I. D. METZGER, Pittsburgh: I want to speak a word in respect to the émigré. Our experience has been that many of these people are not so desirable as they have been shown by recommendations and other means. They have been trained in an entirely different atmosphere from ours, in most cases at least. They have been aggressive, most of them, in social lines and therefore have adopted ideas which to me do not necessarily tend toward the best type of social life in our country. To bring them here and expect them suddenly to adapt themselves to the needs of American medicine is more than we can ask. The same thing would apply if we went abroad. We would have difficulty in adapting ourselves to their social situations, and we would have great difficulty in securing a license in any of those countries. The statement was made that the purpose is to distribute these people to the country districts which are not supplied with physicians. The fact of the matter is that in our state you can't drive them into the country districts. They want to be associated with their own groups of foreign people, who are assembled in the cities and not in the country districts. Let these people stand on the same basis as American physicians. Let them comply with the qualifications required by the law, without any deviation. If you evaluate their premedical college work you can't get more than one year of premedical work out of their credentials. How we can accept that when we have two years' requirement I don't know, yet we are doing it. We require also that these must be signed by the dean, approved by the minister of state in the country in which they have been received, and viséed by the American

consul in that district. We do not accept student books which they carry around and which are subject to alteration. We found three persons who had all sorts of credentials, but because of our intern year we required them to go into the hospital and they did not know the first thing about medicine. They are more bewildered in the hospital than our own boys are, very often, in coming out of medical school, and patients resent their presence.

DR. THOMAS J. CROWE, Dallas, Texas: Every one of our medical colleges is turning away every year from 500 to 1,500 applicants for entrance. Notwithstanding that they have the premedical qualifications, only a limited number of students can be admitted. What are we going to do with them? The question is whether or not we owe anything to our own young men, whether or not we shall import the émigrés and deny our own young men entrance to our medical colleges. I hear a lot about the rural communities being without physicians. What is the real situation in Texas, and I presume it is the same throughout the United States? We have in Texas over 300 hospitals. We have 254 counties. Farmer Jones puts the madam in a limousine and goes off to the hospital. When the boy is smashed up in his roadster on the highway does he call the rural doctor? No, he runs the boy to the city hospital. There isn't any rural community in medicine in the United States any more.

MR. WILLIAM C. MAC TAVISH, New York: I would like to make a strong plea for liberal, sympathetic and fair consideration of this refugee problem by the state boards. These refugees have been admitted to this country after careful scrutiny by our immigration authorities and they come on the same footing as any other people who intend to become citizens of our country. In most cases I think the level of character among this particular group is at least as high as most of the immigrants we get. Men trained in other professions or trades who come to this country are permitted to earn their living here, using the same profession they had on the other side. In medicine it is somewhat different, but we can safeguard that by requiring them to take the same rigid examinations to which our own graduates are exposed. At present, because of the laws, it is possible for them to settle in only a limited number of states. It would be desirable if they were allowed to spread out over the country. The number is very small and they will be absorbed within a short time. Many of them are highly qualified. They would be desirable acquisitions in any community. I have had occasion to meet several of them. It has been remarkable for me to see a man in his late fifties, with a limited knowledge of English, within a short time learn enough English to take examinations and also to pass these examinations. How many of us who have been out of medical school twenty or twenty-five years could now pass the examinations in the preclinical subjects? I don't say they should be given any special consideration whatever, but they should be given a fair chance, treated as any other immigrants. As for the number who may be undesirable, I think the percentage would be found to be the same or even less than in any other group.

DR. JULIAN F. DU BOIS, St. Paul: In 1912 Dr. Bevan reviewed American medical schools and informed us that we were graduating too many doctors and advised the schools to curtail their enrolment or increase their requirements to prevent overcrowding. That was largely done, and thousands of American boys have been prevented from taking medical courses, and I assume it is the same in other professions. Now we are confronted by a people who have had a catastrophe. In spite of the fact that we have prevented our own boys from taking this work, we are now advised to take what is comparatively a large group. If there are places where there is a scarcity of physicians, we in Minnesota do not know it. Have we a moral right to give away the birthright of the oncoming student? Dr. Bierring's subject to me is the open field of the future. He is not advising that we take all the people from South America, Mexico and so on but that we begin to establish relations, which I think is the coming field. I am gratified to hear Dr. Rappeley's report. The classification of hospitals that we have had in the past, as being good for interns, is largely a myth. I have interviewed students taking the examination, regarding their internship, and with many of them I think the best that you could say was

that they had a fair place to live, perhaps only a fair table and, if they had a lot of energy, they could get some material; but the hospital and the staff did nothing for them.

DR. N. B. BUE, Marlin, Texas: There has been a lot said about these immigrant physicians. We have a country of great resources. We can't license old physicians. They don't know anything about the things taught in medical colleges today. They want us to examine them on some little trick in public health or surgery, just one thing. They say "This examination is for students, not for us. We are trained physicians." Under the Texas law every fellow gets a number. I don't know whom I am examining. The law says I must not try to find out until after the examination is over. The only way I can tell if a fellow doesn't belong here is when I can't read his writing. They try to describe everything you ask on the liver and heart in a few lines and then have the United States Senator write you a letter. I want to say what the doctor from the state of Pennsylvania said. Our first duty is to our own boys. I like every one. We can't let them come in because we are sorry for them. In Texas we have some of the refugee physicians. We licensed a few of them before we changed our law. Every one of them, unless he has an uncle with a big store, is starving in the practice of medicine. Dr. Rappleye certainly rang the bell. There is no attempt at teaching in the majority of hospitals of this country. When an intern comes out he knows less medicine than he did when he graduated. It is ridiculous. Uniformity of teaching in the hospital is just as important as it is to regulate the teaching in the medical school. We can tell hospitals what they should do to get good interns and they will do it.

DR. W. D. JOHNSON, Batavia, N. Y.: It seems that New York has been the mecca of the refugee. Dr. Pratt told us that 125 men had been placed by his committee in New York largely in rural communities where they need doctors. I come from a rural community. I know at least a half dozen that have been, we realize, planted in our western New York communities. Apparently towns from 5,000 to 20,000 have been selected as places for the refugee physician. I know the medical situation in every one of these towns. Not one of them needed any more doctors than they had. I don't think there is a great deal to this refugee physician problem that we need worry about. If I have any indictment of refugee physicians it is because they do not furnish good enough competition for our young men who are coming out of medical colleges to be a stimulus, and we need that stimulus. They are city people; they don't belong in a rural community at all. The men that I know are good men and they will make good citizens.

DR. EDWARD A. KNOWLTON, Holyoke, Mass.: We have taken a liberal hospitality in Massachusetts toward the refugees. Some of our board members have not been of that opinion, but I have. I have been very glad to welcome good doctors to our state. I think most of these refugees are competent to practice medicine. About denying the privilege to the home boy, and all that, I think we are shedding crocodile tears because most of those fellows who have applied to medical school have been rejected by the school as not proper persons to go into the medical schools. About credentials, which the doctor from Pennsylvania brought up, we realize they can't get their credentials certified by people in Europe now. We have adopted the principle that if a man comes in with his student books, which usually cover at least five years of medical study, and with a license to practice in Germany, we accept him for examination. We have questioned once in a while whether or not the papers were fraudulent but we have a couple of very good men in Boston, Dr. Soma Weiss and Dr. Tannhauser (he is over at Tufts), who know conditions in Germany and know medical education, and we can simply ask them to see whether or not these credentials are valid or fraudulent, and we have gone by their opinion. We haven't run across any crooks.

DR. R. G. LELAND, Chicago: It seems to me we ought to be gratified over the discussion which was brought by Dr. De Lancy on the relations of the social sciences to medicine. It is necessary, however, in any consideration of the effect of the social sciences or social conditions on the distribution of medical services, the practice of medicine or the licensure for medi-

cal practice, to consider certain other features which I believe the medical profession deserves to have said about it. The medical profession of this country would dislike any sort of legislative or regulatory system which would mean the placing of physicians in a particular place in any part of the country. Those who have spoken have illustrated the difficulties which have confronted many physicians in recent years in retaining a rural practice. Physicians have frequently found, after a considerable time of devoted service to the rural people, that their rural clients were going to the cities for medical services and later the doctors were compelled to seek other fields. Improved roads have made it possible for medical services to be distributed more easily and farther than at any other previous time. I dislike to believe that the people of this country are denied medical services because they have no money with which to pay. The best information that we can get is to the effect that people of this country are not denied medical care if they have the knowledge of the places to go to get it and if they have the desire for medical care. We must remember that 10 per cent or more of the population do not want medical care. The question of distribution of medical services is complicated, one in which we need the help of all those who have something to offer, the economists, the social scientists and others. But to lay at the feet of the medical profession the responsibility of deciding and finding a solution to all of these problems is unfair. One of the greatest problems today is to put to work the 9,000,000 unemployed people; when those people are employed, many of the problems confronting medicine in the distribution of its services will have been solved overnight. It ought to be recognized also that medicine has done more than many of the other scientific groups to attempt the solution of this problem. It has today performed many more experiments in the methods of giving people good medical service for the amounts that they can afford to pay than all of the other groups combined have ever done. Therefore it is necessary to withhold judgment for a time as to the progress and the methods which should be used. The medical profession is attempting to the best of its ability to find means whereby good medical care can be made available easily and at reasonable prices for all people in the United States. The medical profession must continue to exhibit a sympathetic interest in and the same kind of devotion to the sick people of this country, practicing good medicine as physicians have always done in the United States. If we will continue a sustained effort in this direction, trying the best we can to find a pattern that will safeguard not only the kind of medical care that is given the sick people but the kind of training that is necessary for the physicians who are to follow, the future of medicine will be safeguarded. We must never lose sight of the future of medicine. We should avoid those methods and those efforts which, although they may seem to offer certain solutions for the exigencies of the time, will in all probability be a detriment or a hindrance to the generations of men and women in the future who safeguard the lives of the people.

DR. JOSEPH H. PRATT: I have always thought we could learn a good deal from the German medicine of the good old days. When I was put in charge of a clinic in 1927 I had no money with which to secure as assistants American physicians, but I was able, by making a trip to Germany, to get three German physicians, assistants of well known masters there, to come on fellowships. I thought and still think that it is a broadening association to have men working elbow to elbow who have had a different type of education. From 1927 until the present time I have always had German physicians on my staff. At present I have a staff in the clinic of about thirty-five doctors, nine of whom have degrees from German universities, and all have done and are doing excellent work.

FRANCES P. DE LANCY, PH.D., Morgantown, W. Va.: I should like to remind you that you are not only members of the medical profession but also citizens and voting citizens and consequently interested in the total welfare of the United States. I think it is a wrong attitude for the medical profession to feel that it stands on one side of the fence with the public on the other side and that there is some kind of a fight going on. It should be a picture of cooperation, which was the theme that I was trying to make this morning.

FEBRUARY 13—AFTERNOON

Relationship Between Advertising and the Practice of Medicine

DR. K. E. MILLER, Washington, D. C.: Such knowledge as physicians may have about governmental regulations concerning foods, drugs, cosmetics and devices is largely confined to the activities of the Food and Drug Administration. These pertain to what the labels say about the quality, quantity and value of a product. The measures employed to induce persons to buy these products constitute advertising. It is a function of the Federal Trade Commission to require that advertising be fair and truthful. The Wheeler-Lea Amendment enacted in 1938 defines false advertising.

The Federal Trade Commission cannot stop the sale of any product because of false advertising, nor is it endowed with authority to impose punitive penalties. Its maximum corrective power in such circumstances is the issuance of a cease and desist order specifying claims and inferences in advertising which are adjudged to be false and misleading after weighing all the evidence bearing on the subject. The cease and desist order also demands the discontinuance of the specific claims, or others of like import.

The present law with respect to false advertising of foods, drugs, cosmetics and devices is reasonably adequate to deal with most of the abuses in this field. There is good advertising and bad advertising. The former has a vital and necessary part to play in our economic life and welfare. The latter is an outlaw against which the hand of the law and the bans of decency are raised. There is an ever increasing urge from within the drug industry itself for more conservative and reliable advertising. Any honest advertising may be assured of no difficulties at the hands of the Federal Trade Commission. On the other hand, false and fraudulent advertising may expect no quarter. No fair minded advertiser could find fault with this policy.

The great bulk of the Federal Trade Commission's problems with respect to drugs has to do with preparations sold to the lay public for self medication. Whether we like it or not, self medication is the inalienable right of Americans, and it is here to stay. The question confronting the medical profession is what attitude we shall take toward the problem. I will not attempt either to justify or to condemn self medication. Certainly the hazards would be much less if, along with a conservative recital of the virtues that might be anticipated, the purchaser of home remedies were told the unvarnished truth as to their therapeutic limitations. If persons are going to buy medicines for self administration, as is inevitable, then in the interests of life saving, to which all upright physicians must be committed, they should be served with reliable information on which to base mature judgment. This having been done, the individual becomes solely responsible for any evil consequences. The Federal Trade Commission has undertaken to enforce truthfulness in advertising of drugs and allied products in order to safeguard the public. Incredible as it may seem, the files of the Federal Trade Commission are replete with letters from physicians attesting the virtues of all grades of proprietary remedies. There is no nostrum so rank as to be unable to secure endorsement by some one authorized to affix an M.D. to his name. A more serious embarrassment arises from medical authorities whose published statements are either too old or too new. In the former classification are many erroneous conceptions that have been carried forward from medical antiquity and incorporated in recently published textbooks. At the other extreme are the new and unproved ideas of recognized leaders in contemporary medicine. There is another side of the picture which much more truly characterizes the medical profession. The true spirit of the medical profession is portrayed in that class of men who have on numerous occasions given unsparingly of their time and talent to render medical testimony, without compensation, when called on to do so by the Federal Trade Commission. Among these unsung heroes, not a few have been known to refuse fancy fees for testimony contrary to their convictions, preferring instead to testify for the government along the lines which they knew to be scientifically honest. The Federal Trade Commission is proud to acknowledge the valiant support it has unfailingly received from the medical profession in the investigation of its most difficult and important cases.

Philosophic Trends in Medical Practice Laws

DR. H. M. PLATTER, Columbus, Ohio: Almost fifty years has elapsed since medical practice acts were enacted and the responsibility of administration of them was lodged with boards of licensure in the several states. The purposes of these enactments were to increase the educational qualifications of practitioners and to protect the public from incompetents and charlatans. Today the licensing bodies are further apart than several years ago, and apparently each state is developing an individuality of procedure. As a result, so-called reciprocity is outmoded and endorsement has taken its place. Recent decisions of the Supreme Court of the United States as well as the decisions of the district and state courts seem to legalize more and more the acts of administrative boards. Laws providing for annual registration, basic science and lay administration have also been enacted in several of the states.

That the United States, as a whole, might be benefited by the adoption of a uniform medical practice act might be taken for granted if the machinery for enforcement could be made possible; but without amendment to the federal constitution such procedure cannot be undertaken. In the absence of it the interested bodies should meet in frequent conference to determine how best to proceed to improve present day administration. Broadly speaking, such procedure will quite likely carry us further than the enactment of new laws, for as I interpret present day trends the authority granted us is susceptible of great extension and can easily be modified by the adoption of additional requirements without the enactment of new laws which might need to be amended or repealed.

If it should finally be determined that boards of licensure can exercise more power by the adoption of board resolutions, we ask your aid to see that it is wisely used. In this manner our efficiency can be increased, particularly with the cooperation of the profession, health authorities and others. A sentiment for law observance and law enforcement must prevail in a community to accomplish results worth while. Strong trends to individual action should not complicate friendly relations with other states, and conferences with other agencies can develop a better understanding of our duties and obligations.

Medical Examinations and Licensure**COMING EXAMINATIONS****STATE AND TERRITORIAL BOARDS**

Examinations of state and territorial boards were published in *THE JOURNAL*, April 13, page 1485.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II, June 17-19. Part III, June or July, to be given in medical centers having five or more candidates desiring to take the examination. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: An Affiliate of the American Board of Surgery. *Oral.* Part II, New York, June 10-11. Applications must be received 60 days prior to examination. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILIGOLOGY: November 1940. If a sufficient number of applications were received before March 1 an examination will be held at New York, June 10-14. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* In advance of the meeting of the American Medical Association. Applications must be on file six weeks in advance. *Written.* October 21. Applications must be on file by September 1. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *General oral and pathologic examinations (Part II).* (Group B) will be conducted in Atlantic City, N. J., June 7-10. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* New York, June 8-10; Cleveland, Oct. 5. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, June 3-5. Sec., Dr. W. P. Wherry, 1509 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: New York, June 10-11. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: Memphis, Tenn., Nov. 17, preceding the annual meeting of the American Academy of Pediatrics. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Cincinnati, May 17-18. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: New York, June 7-10. Sec., Dr. Byrl R. Kirklm, 102-110 Second Ave., Rochester, Minn.

AMERICAN BOARD OF SURGERY: St. Louis, Part II, April 27. Sec., Dr. J. Stewart Rodman, 225 South Fifteenth St., Philadelphia.

Book Notices

War Wounds and Air Raid Casualties. Articles Republished from the *British Medical Journal*. Foreword by Sir William P. MacArthur, K.C.B., D.S.O., M.D. Cloth. Price, 16s. 6d. Pp. 256, with 11 illustrations. London: H. K. Lewis & Co., Ltd., 1939.

This is a series of twenty-three pertinent articles by authoritative writers republished from the *British Medical Journal*, with a foreword by W. P. MacArthur, Lieutenant General, Director General, British Army Medical Service. Chapters are devoted to the discussion of injuries of the head, chest, abdomen, genito-urinary tract, extremities, and peripheral nerve and blood vessels. Other chapters cover the subjects of shock, transfusions, amputations, chemical warfare, air raid precautions, effects of high explosives, and psychologic emergencies during war. The text is given largely to consideration of the treatment of the types of casualties noted. Discussions of medical field service and the organization of aid posts and hospitals are also included. It will be readily understood that only the most essential facts can be recorded in a book of such small volume. It is unhesitatingly recommended for the reader who desires a brief but authoritative discussion of the conditions which the medical officer will meet in active service.

A History of Tropical Medicine Based on the Fitzpatrick Lectures Delivered Before the Royal College of Physicians of London 1937-38. By H. Harold Scott, C.M.G., M.D., F.R.C.P., Director, Bureau of Hygiene and Tropical Diseases, London. In Two Volumes. Cloth. Price, \$12.50 per set. Pp. 648; 649-1165, with 13 plates. Baltimore: William Wood & Company, 1939.

This is precisely the sort of a book to be expected from a British scholar familiar with colonial administration and accustomed to a wide horizon and a long view of the world and men with the diseases which afflict them. It is scholarly, comprehensive without being loaded with insignificant detail, remarkably free from support of controversial subjects, and adhering closely to the theme. Perhaps quite naturally the data from British imperial sources are more fully presented than those from others contributory to the field. Moreover, the author is a realist and is keenly aware of the distinction between the discovery of a scientific basis for the control of a disease and the practical results of its use. Thus he says of malaria "In malaria, with the discovery of the parasite, its mode of development and its transmission, we thought we had gone far; when it was found that one genus only of mosquitoes, *Anopheles*, would transmit infection, we congratulated ourselves that now we had the key to eradication of malaria. We were wrong; that was only a half-way step. We have known it now for nearly forty years, yet malaria in warm climates is as bad, as rife, as prevalent as ever, and nearly as fatal as it was a quarter of a century ago."

He notes the difference between tropical medicine, on which there are many treatises, and its history, of which there is none, but only casual scattered comments. The very definition of tropical medicine is elusive; the tropics of Cancer and Capricorn do not delimit it; "diseases in warm climates" include the whole of medicine. "Prevailing diseases in the tropics" fail to account for recorded changes in incidence. For instance, malaria, cholera, plague, hookworm, leprosy, smallpox and typhoid, once regarded as tropical in origin, are in reality quite as much endemic in temperate regions. Some diseases are, however, confined to the tropics because their vectors occur there, such as trypanosomiasis and others of parasitic origin. The author includes Rocky Mountain fever in this list, evidently unaware of the geographic location of Bitter Root Valley!

He cuts the Gordian knot by resolving not to write a history of tropical diseases but of tropical medicine. Quite naturally he begins the story with chapters on the British navy and mercantile marine and turns next to the army and then to the colonies, protectorates and dominions, to India and Australasia, for a historical survey of the conflict with disease in these far-flung outposts of empire.

The major part of the two large volumes is given to a historical account of the diseases customarily regarded as tropical, to wit malaria, blackwater fever, yellow fever, African and American trypanosomiasis, the leishmaniasis, leprosy, cholera, plague, undulant and relapsing fevers, melioidosis, dengue, amebic dysentery and hepatitis, ancylostomiasis and the avitaminoses,

such as beriberi, epidemic dropsy, pellagra and scurvy, and diseases due to akee and ginger poisoning, and their treatments. Two chapters are devoted to the Suez and Panama canals and the part they played in the fight against tropical diseases, and one to the slave trade and the part it played in the distribution of tropical diseases and the continuing problems of the Negro and his diseases.

A closing section is devoted to the lives of Jacobus Bontius, David Bruce, James Carroll, Oswaldo Cruz, John Everett Dutton, Juan Carlos Finlay, Garcia da Orta, William Crawford Gorgas, Jesse W. Lazear, William Boog Leishman, James Lind, Patrick Manson, Hideyo Noguchi, Walter Reed and Ronald Ross, with portraits. There is a bibliography of significant items and very full indexes of names and subjects.

This book ought to be in every medical library, and every medical student should read it to give him a perspective in time and space of the worldwide and age old sway of human disease, largely as yet unchecked in some fields but with increasing promise of prevention and control in others. It is full of dramatic interest to every physician.

Die Tuberkelbazillurie: ihr Wesen und ihre klinische Bedeutung. Von Dr. Karl Breu, Tuberkuloseforscherarzt beim Staatl. Gesundheitsamt Ludwigsburg. Nr. 74, Tuberkulose-Bibliothek: Beihefte zur Zeitschrift für Tuberkulose. Herausgegeben von Dr. Franz Redeker, Oberregierungs- u. Obermedizinalrat, Berlin, und Dr. Karl Diehl, Dirigierender Arzt, Sommerfeld. Paper. Price, 3.30 marks. Pp. 31. Leipzig: Johann Ambrosius Barth, 1939.

This monograph (or reprint) in German from the *Zeitschrift für Tuberkulose* records the author's opinions and observations on tubercle bacilluria, with briefs of twenty-three cases. According to Breu, who expresses the Dimtza view, tubercle bacilluria is a condition in which tubercle bacilli are passed into the urine in cases of extrarenal tuberculosis (1) through healthy kidneys, (2) through nontuberculous but otherwise altered kidneys and (3) through altered kidneys in the sense of a so-called nephritis tuberculosa. The essential literature is reviewed, beginning with the observations of Foulerton and Hillier in 1901. Various phases are discussed leading to the view of Uebelhör and Schneider that (1) the determination of tubercle bacilli in the urine does not indicate the existence of a urogenital tuberculosis and justify nephrectomy, (2) to exclude a surgical kidney tuberculosis, exact urologic examinations are necessary, and (3) in each case of tubercle bacilluria a sufficiently long observation period is essential to determine the presence of an organic operable renal tuberculosis. Breu reports that in the twenty-three cases of open pulmonary tuberculosis he was able to obtain animal pathogenic tubercle bacilli from the urine without the slightest proof of the existence of a renal tuberculosis. The still prevalent view that the determination of tubercle bacilli in the urine leads to a diagnosis of an operable renal tuberculosis is not substantiated here. The tubercle bacilluria is viewed as an index of a general disease injury, a generality problem of the tuberculous condition. Two pages of references are appended. This monograph will interest primarily the investigator or specialist who reads scientific German. It is flavored mainly with German speaking literature and views but is well printed and readable.

Fruit and Vegetable Juices. By Donald K. Tressler, Ph.D., Head, Division of Chemistry, New York State (Genova) Agricultural Experiment Station, Maynard A. Joslyn, M.S., Ph.D., Assistant Professor of Fruit Technology, University of California, Berkeley, and George L. Marsh, M.S., Associate, California Agricultural Experiment Station, Berkeley, California. Cloth. Price, \$6 domestic; \$6.25 foreign. Pp. 529, with 80 illustrations. New York: Avi Publishing Company, Inc., 1939.

This is an authoritative discussion of the preparation and preservation of fruit and vegetable juices for high nutritive value and palatability. The first section is devoted to the history and future of the juice industry. Prior to 1925 the only preserved juice of any commercial importance was bottled grape juice. Canned grapefruit juice was first prepared on a commercial scale in 1926, tomato juice in 1928, pineapple juice in 1931 and orange juice in 1934. Since 1935 the production of canned juices has approximately doubled and the authors predict that the industry will continue to grow at least as long as better and better products are offered. Then follow sections that include an outline of the principles of preparation and preservation of juices, brief but adequate descriptions of the

more important types of equipment now available, designs of plant layouts for the efficient operation and production of high quality juices, tested laboratory methods for preparing and preserving the lesser known juices, and methods of utilizing fruit juice concentrates, syrups, beverages and wastes. Of more general interest is the section dealing with the nutritive values of fruit and vegetable juices. It is difficult for any one not familiar with the scientific literature on nutrition to obtain any definite information on the amounts of the several vitamins actually found in fresh and preserved fruit and vegetable juices. In this volume are tables showing not only the composition of all fruits and vegetables used for juice but also the most recent data on their vitamin content. At the end of each chapter is an excellent bibliography. There is an appendix that includes extracts of recent federal and state legislation relative to the fruit and vegetable juice industry and a subject index. The book is well written, well illustrated and timely. It merits the careful consideration of all persons engaged in the juice industry, dietitians and nutritionists.

Fever and Psychoses: A Study of the Literature and Current Opinion on the Effects of Fever on Certain Psychoses and Epilepsy. By Gladys C. Terry, Research Associate in Neurology, Neurological Institute of New York, Columbia University. Cloth. Price, \$3. Pp. 167. New York & London: Paul B. Hoeber, Inc., 1939.

The author has collected and summarized the published data and personal opinions of clinicians concerning the effect of fever on various psychoses. The fever treatment of psychoses resulting from syphilis or its complications has purposely been omitted from the volume. The monograph first describes the clinical effects of intercurrent natural fevers on functional psychoses and epilepsy. It then summarizes the results of artificially induced fevers in the affective psychoses, schizophrenic psychoses and epilepsy. The references to the literature are copious and extend back to the middle of the nineteenth century. The book is well organized and presents the subject clearly. It draws no false conclusions from the mass of often very contradictory material. On finishing the book the reader will come to the author's conclusion that the wide divergence of expressed opinions is evidence, in itself, of the fact that the subject of febrile influences on the so-called functional psychoses is essentially a matter of speculation largely determined by background and bias. Because of the critical unbiased manner in which the material has been collected and presented, the volume is of great use to the student and physician interested in the subject. There is an excellent bibliography but no index.

Traité d'ophtalmologie. Publié sous les auspices de la Société française d'ophtalmologie par MM. P. Bailliant, Ch. Conteila, E. Red-slob et E. Velter, René Onfray, Secrétaire général. Tome VI: Pathologie (fin); Neurologie (début). Par MM. J. Coppez et al. Cloth. Price, 400 francs. Pp. 954, with illustrations. Paris: Masson & Cie, 1939.

The sixth volume of the new French encyclopedia of ophthalmology appears according to the time schedule originally outlined. The format is the same as that of the previous volumes except that a slightly better grade of paper has been used. The contents and authors are: Diseases of the Vitreous by Koby, of Paris; Congenital Disorders of the Eyeball by Coppez, of Paris; Ocular Injuries by Danis, of Brussels; Burns of the Eyeball by Coppez; Panophthalmitis and Sympathetic Ophthalmia by Coppez; Pathologic Tension by Magitot, of Paris; Diseases of the Orbit by Terrien, of Paris; Cranio-Orbitofacial Malformations by Patry, of Geneva; Relationship of Ocular Disease to Diseases of the Ear, Sinus, Throat and Teeth by Worms, of Lyons; Introduction to Ocular Neurology by Tournay, of Paris; Diseases and Traumas of the Optic Nerve by Gabriel and Gilbert Sourdille, of Nantes; Tumors of the Optic Nerve by Nordman, of Strasbourg; Diseases of the Chiasm by Hartman (roentgenologist) and David, of Paris; Diseases of the Retro-chiasmal Optic Pathways by Monbun, of Paris, and Ophthalmic Migraine by Jean-Gallois, of Paris. Koby's chapter on the vitreous is excellent and is well illustrated, particularly from the standpoint of biomicroscopy. Although many of the other chapters are good, both in scope and in detail, there is on the whole somewhat of a feeling of disappointment in that the detailed management of individual phases is not quite up to what one expects in such a monumental work. Apart from Koby's

chapter and the two chapters by the Sourdilles, the illustrations are somewhat sparse and inadequate. But the greatest disappointment of the entire volume is the chapter on glaucoma by Magitot, which is more fitted for a textbook on ophthalmology than for an ophthalmic encyclopedia. However, the final chapter, on ophthalmic migraine, fairly sparkles in its brilliance.

Reihenmässige Röntgenuntersuchungen der in der Kinderfürsorge und -pflege tätigen Berufsgruppen. Von Dr. C. L. Paul Trüb, Regierungs- und Medizinalrat, Berlin. Nr. 76, Tuberkulose-Bibliothek; Beihefte zur Zeitschrift für Tuberkulose. Herausgegeben von Dr. Franz Redeker, Oberregierungs- u. Obermedizinalrat, Berlin, und Dr. Karl Diehl, dirigierender Arzt, Sommerfeld, Paper. Price, 5.40 marks. Pp. 40. Leipzig: Johann Ambrosius Barth, 1940.

This small volume (actually a bound monograph) of a statistical study by clinical and roentgenologic means of certain regulated groups (nurseries, orphanages, schools) in Arnsberg, Westphalia, should prove of value to all interested in tuberculosis health hazards and public health in general. A clinical-roentgenologic examination is urged for all employees in the care of nurslings, small children, school children and youths. A yearly examination roentgenologically is advised. When active tuberculosis is found, the occupation is discontinued until activity has subsided. With well grounded suspicion of tuberculosis, or when inactive tuberculosis is present, a greater supervision with frequent clinical-roentgenologic control examinations is to be pursued. Those employed in nurseries or schools having charge of children should be given cards recording the results of examination and are transferred with each change of location. The monograph is well written and contains a bibliography of ninety-three references to the subject at hand. The tabulations will prove of interest in noting the details of such a survey and in percentage figures based on the types of tuberculous disease found. The monograph is well worth the nominal price if one is interested in the particular problem considered by the author. It is not a textbook but a specialized monograph of group statistics in tuberculosis dealing particularly with children and those having charge of them.

Plumbism and Chronic Nephritis in Young People in Queensland. By R. Elliott Murray, M.B., B.Sc., D.T.M. Together with a Method for the Estimation of Lead in Biological Materials. By R. Elliott Murray and I. F. Stephens. Service Publication Number 2 (School of Public Health and Tropical Medicine, University of Sydney). Commonwealth of Australia, Department of Health. Paper. Pp. 119, with illustrations. Sydney, 1939.

Chronic nephritis in Queensland, Australia, and especially Brisbane is unduly prevalent as a factor in mortality in age groups under 30 years. This investigation, issued under the authority of the Minister for Health, implicates lead intoxication in children as the most likely cause rather than scarlet fever, focal sepsis, mosquito-borne diseases and climatic effects. The source of the lead is thought to be weathered and powdered house paint. The technic and advantages of the diphenylthiocarbazone (dithizone) method for the estimation of lead in biologic material is incorporated in the study.

Facts and Theories of Psychoanalysis. By Ives Hendrick, M.D. Second edition. Cloth. Price, \$3. Pp. 369. New York: Alfred A. Knopf, 1939.

The first edition of this volume appeared in 1934. The present edition gives a brief description of psychoanalysis with reference also to its technic. Some of the sections have been rewritten to agree with studies published within the past five years. Two new chapters concern psychologic study of organic disease and the application of psychoanalysis to conditions other than medical. The author is one of the few writers in this field who seems to be capable of addressing himself understandably to a lay audience.

The Hospital Care of Neurosurgical Patients. By Wallace B. Hamby, M.D., F.A.C.S., Associate Professor of Neurology, University of Buffalo School of Medicine, Buffalo. Cloth. Price, \$2. Pp. 118, with 24 illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, Publisher, 1940.

Here is a book well conceived, clearly written and concise, which achieves admirably the purpose for which it was designed. It was prepared for the information of resident house officers and nurses as to their duties to patients suffering from the common neurosurgical diseases, both before and after operation. It is not to be supposed, however, that no others will benefit

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by its perusal. The author has the happy faculty of presenting in a readily understandable form all that is material without obscuring the presentation with unnecessary detail. He is also to be complimented on the clear and truly illustrative line drawings, which are apparently his own handiwork. There are a few minor errors and possible omissions. The most accessible vein for venoclysis at the ankle is situated just lateral and anterior to the internal malleolus, not medial and anterior to the external malleolus (pp. 43 and 45). In the presence of an intraspinal tumor the spinal fluid may be yellow and contain an excess of protein above as well as below the "block" (pp. 29-30). Some- what more detail as to (1) the contraindications to and dangers from lumbar and cisternal puncture (pp. 23-29) and (2) the treatment of "shock" (p. 55) might be desirable. However, these are all matters of little consequence which do not detract from the value of this excellent small monograph. There is an extensive index but no reference to the literature.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Medical Practice Acts: Practice of Chiropractic by Podiatrist.—The petitioner was licensed to practice chiropractic in Maryland and in New Jersey, in which latter state he had an office. In New York he was licensed to practice podiatry, and the present proceeding arose in that state. After a hearing on a charge of practicing medicine without a license, the state board of podiatry recommended that the petitioner's license to practice podiatry be suspended for one year. The board of regents, however, revoked the license, and the petitioner applied to the supreme court of New York, appellate division, third department, for a reversal of the revocation order.

The evidence against the petitioner consisted of the testimony of three women investigators for the department of education. The petitioner admitted that he examined these women and that he gave spinal adjustments to one of them. There was evidence that he gave to one of the investigators certain pamphlets discussing chiropractic treatments and various subjects relative to health, and that he also gave her a card bearing his name, followed by the abbreviation Ph.C., which he said meant Philosopher of Chiropractic. In defense of his actions, the petitioner testified that he was much interested in chiropractic from a scientific standpoint and that he had attended chiropractic schools, including a New York school of chiropractic from which he received a diploma. He admitted that he had "adjusted" a few relatives and charity patients but contended that, except with respect to the persons acting as investigators for the department, he had not otherwise transgressed the law.

Technically, said the court, the acts admitted by the petitioner constituted the practice of medicine and the engaging in a practice beyond the privileges and rights accorded to him as a podiatrist. The court did not think, however, that it had been established satisfactorily that the petitioner had engaged in the practice of medicine or had violated the terms and conditions of the act under which he was licensed as a podiatrist, according to ordinary meaning and understanding; the instances of violation were too few, casual and trivial. In the face of a penalty so drastic, namely, the revocation of the license, the court thought that justice required that there be proof of more flagrant violation of the law than the isolated and technical instances shown. The order of revocation was accordingly annulled and the case remitted for further hearing.

In a dissenting opinion, Justice Bliss said in part: The evidence against petitioner was all furnished by paid women investigators of the Department of Education who went to him and asked for treatment. The Board of Podiatry Examiners, which heard the charges against the petitioner, has found that he questioned one of these investigators concerning her general physical condition, required her to disrobe, used upon her neck and back an apparatus allegedly for the examination of nerves, pressed, manipulated and prodded her spine, twisted her neck, jerked her head from side to side, pressed upon her forehead, said that she would need at least ten treatments at \$5 each, advised her to have X-ray photographs taken and a general, rundown condition, that she could work properly and give her better results, described the condition of her spine and said that he could cure her fever with his treatments; took her blood pressure with the use of an instrument and said that it was a little low, but not bad, listened to her chest wall with a stethoscope and said that her heart was good, took her pulse, examined the mark of an incision on her abdomen and said that an ovary had not been removed, that his treatments would relieve pressure on the spine which was the cause of her fever, that after a few treatments he would bring the blood pressure up to normal. He told her she had arthritis and two bad curvatures of the spine and that her left hip was higher than her right. As to the other investigator, he questioned her concerning her general physical condition, felt of her left leg where she was strained, pressed, manipulated and prodded her calf of her left leg where she was strained, pressed, manipulated and prodded her back and spine, twisted her neck, jerked her head from side to side, jerked her left shoulder, leg and foot and manipulated her feet, told her there was pressure on her sciatic nerve and that such pressure caused pain and that he could cure her and that she needed five or six of his treatments at \$5 each.

This dissenting justice found it difficult to understand what more the petitioner could have done had he been a fully licensed doctor of medicine. Under the guise of a podiatrist, this justice said, the petitioner assumed to practice medicine. Justice Bliss, therefore, dissented from the majority opinion and voted to confirm the revocation order.—*Application of Merendino (N. Y.), 10 N. Y. S. (2d) 800.*

Dental Practice Acts: Advertising as Constituting Dishonorable Conduct.—In separate proceedings the district court of Wyandotte County, Kan., enjoined the State Board of Dental Examiners of Kansas from enforcing orders it had entered revoking the licenses of the plaintiffs to practice dentistry, and the board appealed to the Supreme Court of Kansas where the cases were, in effect, consolidated.

The dental practice act of Kansas authorizes the board of dental examiners to revoke licenses "if issued to the individuals who have by false or fraudulent representations obtained or sought to obtain said license or money or any other thing of value or have practiced under names other than their own, or for any other dishonorable conduct." Prior to the institution of the revocation proceedings, both the dentists advertised in certain newspapers in Kansas City, Kan., and both dentists maintained either on the outside of the buildings in which their respective offices were located, or in the entry ways thereto, display cases containing specimens of dental work. In 1937 the Kansas dental practice act was amended, making it unlawful for dentists to advertise in certain designated ways "or to employ 'cappers' or 'steerers' to obtain patronage or to exhibit or use specimens of dental work; posters, or any other media calling attention to the public to any person engaged in the practice of dentistry." After the enactment of this law both dentists made efforts to comply with it. Their advertising copy was revised and the advertising manager of one of the newspapers running the revised copy complied with the law. Apparently the board received similar advice from the attorney general's office. Before the revised advertising copy of the accused dentists was published the advertising manager wrote to the president of the dental board informing him of the advice received from the attorney general's office and submitted the proposed advertising for an opinion by the board. The president of the board promised a definite answer within a week but the only answer ever given was the commencement of revocation proceedings. After hearings, the board found that since the defendants admitted that they advertised as noted and maintained display cases of dental work "they were therefore guilty of practicing dentistry in an unlawful manner and contrary to the laws of the state of Kansas." In the opinion of the Supreme Court, more of the causes set out in the dental practice act. The only possible ground for revocation in these cases was that the conduct of the dentists constituted dishonorable conduct, since advertising per se was not named in the act as a ground. The fundamental issue involved, said the court, was whether or not the revocation orders were unreasonable, arbitrary or oppressive under the facts. The 1937 amendment to the dental practice act had not been judicially interpreted, the court pointed

out, but the dentists made efforts to revise their advertising to comply with the new law after obtaining legal advice. An effort was made, too, to have the board pass on the propriety of the proposed advertising. After revocation proceedings were instituted the dentists discontinued all advertising and the use of display cases, informing the board that, notwithstanding the legal advice they had received, they would make every effort to comply with the law as interpreted by the board. When the dentists ceased such advertising, in an effort to comply with the personal views of the members of the board, it was no longer necessary, the court said, to revoke their licenses in order to protect the public against what the board conceived to constitute infraction of a criminal law. The board nowhere made a specific finding that the dentists were guilty of dishonorable conduct but proceeded on the theory that any act which in its opinion violated the 1937 amendment constituted grounds for the revocation of a license regardless of any and all extenuating circumstances. In the opinion of the court, the action of the board was unreasonable and resulted in an arbitrary and oppressive judgment.

While the findings of an administrative agency are not open to review or interference by the courts except where fraudulent, arbitrary or in excess of its authority, and while courts are not permitted to substitute their judgment for that of administrative tribunals, yet courts are definitely charged with the duty of determining whether the procedure employed in reaching that judgment or whether the judgment itself, as rendered, is unreasonable, arbitrary or oppressive, under the circumstances of each particular case. An administrative body cannot be the final judge of the reasonableness of its own orders. An administrative body has wide discretion in determining its judgments, but the discretion cannot be abused; it must actually be exercised reasonably in view of all and not merely some of the circumstances involved.

The board contended finally that its orders of revocation should be sustained irrespective of the 1937 advertising law. It was argued that there was before the board evidence that advertising had been taught to be unethical in the dental school which one of the dentists attended, that advertising was regarded as unethical by the profession and that advertising therefore constituted dishonorable conduct. Many wholesome philosophies and doctrines are taught in the professional schools, said the court, which professional societies are eager to adopt but which they have not yet been able to persuade their members to adopt as a part of a code of ethics. There was nothing in the record to indicate, the court pointed out, that the state dental society had adopted a code of ethics prohibiting the kind of advertising employed in these cases or any other kind of advertising. Whether or not the violation of a professional code of ethics constitutes dishonorable conduct was not before the court. The board of dental examiners made certain specific findings, but it did not find that the dentists in question were guilty of dishonorable conduct. If such a finding was intended, the court thought, it could not be sustained.

The judgments of the trial court enjoining the enforcement of the orders of revocation were therefore affirmed.—*Capland v. Board of Dental Examiners; Brown v. Same* (Kan.), 87 P. (2d) 597.

Society Proceedings

COMING MEETINGS

American Medical Association, New York, June 10-14. Dr. Olin West, 535 N. Dearborn St., Chicago, Secretary.

Academy of Physical Medicine, Richmond, Va., Apr. 24-26. Dr. Herman A. Osgood, 144 Commonwealth Ave., Boston, Secretary.

American Association for the Surgery of Trauma, Atlantic City, N. J., June 7-8. Dr. Ralph G. Carothers, 409 Broadway, Cincinnati, Secretary.

American Association for Thoracic Surgery, Cleveland, June 6-8. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.

American Association of the History of Medicine, Atlantic City, N. J., May 4-5. Dr. Henry E. Sigerist, 1900 East Monument St., Baltimore, Secretary.

American Association on Mental Deficiency, Atlantic City, N. J., May 22-26. Dr. E. Arthur Whitney, Washington Road, Elwyn, Pa., Secretary.

American Broncho-Esophageal Association, New York, June 5. Dr. Paul Hollinger, 1150 N. State St., Chicago, Secretary.

American College of Chest Physicians, New York, June 8-10. Dr. Robert B. Homan Jr., P. O. Box 1069, El Paso, Texas, Secretary.

American College of Radiology, New York, June 12. Mr. M. F. Cahal, 540 North Michigan Bldg., Chicago, Executive Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., June 10-11. Dr. Albert F. R. Andresen, 88 Sixth Ave., Brooklyn, N. Y., Secretary.

American Heart Association, New York, June 7-8. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.

American Laryngological Association, Rye, N. Y., May 27-29. Dr. C. J. Imperatori, 108 East 38th St., New York, Secretary.

American Laryngological, Rhinological and Otolological Society, New York, June 6-8. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.

American Neurological Association, Rye, N. Y., June 5-7. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.

American Orthopedic Association, Kansas City, Mo., May 6-9. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.

American Otolological Society, Rye, N. Y., May 30-31. Dr. Isidore Friesner, 36 East 73d St., New York, Secretary Pro-Tem.

American Pediatric Society, Skytop, Pa., May 2-4. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.

American Proctological Society, Richmond, Va., June 9-11. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.

American Psychiatric Association, Cincinnati, May 20-24. Dr. Arthur H. Ruggles, 305 Blackstone Blvd., Providence, R. I., Secretary.

American Radium Society, New York, June 10-11. Dr. William E. Costlow, 1407 South Hope St., Los Angeles, Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 6. Dr. Eugene M. Landis, University of Virginia Hospital, Charlottesville, Va., Secretary.

American Society of Clinical Pathologists, New York, June 6-10. Dr. Alfred S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.

American Surgical Association, St. Louis, May 1-3. Dr. Charles G. Mixter, 319 Longwood Ave., Boston, Secretary.

American Therapeutic Society, New York, June 7-8. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Secretary.

Association for the Study of Internal Secretions, New York, June 10-11. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.

Association of American Physicians, Atlantic City, N. J., May 7-8. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.

California Medical Association, Coronado, May 6-9. Dr. George H. Kress, 450 Sutter St., San Francisco, Secretary.

Connecticut State Medical Society, Hartford, May 22-23. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

Florida Medical Association, Tampa, Apr. 29-May 1. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.

Georgia Medical Association of Savannah, Apr. 23-26. Dr. Edgar D. Shanks, 478 Peachtree St. N.E., Atlanta, Secretary.

Illinois State Medical Society, Peoria, May 21-23. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.

Iowa State Medical Society, Des Moines, May 1-3. Dr. R. L. Parker, 3510 Sixth Ave., Des Moines, Secretary.

Kansas Medical Society, Wichita, May 13-16. Mr. Clarence G. Munns, 112 West Sixth St., Topeka, Executive Secretary.

Louisiana State Medical Society, New Orleans, Apr. 22-24. Dr. P. T. Talbot, 1430 Tulane Ave., New Orleans, Secretary.

Maryland Medical and Chirurgical Faculty of Baltimore, Apr. 23-24. Dr. Richard T. Shaeckelford, 1211 Cathedral St., Baltimore, Secretary.

Massachusetts Medical Society, Boston, May 21-22. Dr. Alexander S. Beggs, 8 Fenway, Boston, Secretary.

Minnesota State Medical Association, Rochester, Apr. 22-24. Dr. B. B. Souster, 493 Lowry Medical Arts Building, St. Paul, Secretary.

Mississippi State Medical Association, Jackson, May 14-16. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.

Missouri State Medical Association, Joplin, Apr. 30-May 1. Mr. E. H. Bartelsmeyer, 634 North Grand Blvd., St. Louis, Executive Secretary.

National Gastroenterological Association, New York, June 4-6. Dr. G. Randolph Manning, Room 319, 1819 Broadway, New York, Secretary.

National Tuberculosis Association, Cleveland, June 3-6. Dr. Charles J. Hatfield, 50 West 50th St., New York, Secretary.

Nebraska State Medical Association, Omaha, Apr. 22-25. Dr. R. B. Adams, 416 Federal Securities Building, Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 14-15. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.

New Jersey Medical Society of Atlantic City, June 4-6. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.

New Mexico Medical Society, Albuquerque, May 27-29. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.

New York Medical Society of the State of New York, May 6-9. Dr. Peter Irving, 2 East 103d St., New York, Secretary.

New York State Association of Public Health Laboratories, Rochester, May 20. Miss Mary B. Kirkbride, New Scotland Ave., Albany, Secretary.

North Carolina Medical Society of the State of, Pinchurst, May 13-15. Dr. T. W. M. Long, 321 Hamilton St., Roanoke Rapids, Secretary.

North Dakota State Medical Association, Minot, May 6-8. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.

Ohio State Medical Association, Cincinnati, May 14-16. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.

Oklahoma State Medical Association, Tulsa, May 6-8. Dr. L. S. Willour, 210 Plaza Court Bldg., Oklahoma City, Secretary.

Rhode Island Medical Society, Providence, June 5-6. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.

Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., May 4. Dr. W. C. Spain, 116 East 53d St., New York, Secretary.

Society of Surgeons of New Jersey, Paterson, May 22. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.

South Carolina Medical Association, Charleston, Apr. 30-May 2. Dr. E. A. Hines, Seneca, Secretary.

South Dakota State Medical Association, Watertown, May 20-22. Dr. Clarence E. Sherwood, Madison, Secretary.

Texas State Medical Association of Dallas, May 13-16. Dr. Hedman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1930 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery
9: 245-292 (Feb.) 1940
Intra-Ocular New Growths. J. M. Donald, Birmingham.—p. 245.
History of Urology in Alabama. J. U. Reaves, Mobile.—p. 258.
Brief Review of Pathology of Endometrium. L. C. Posey, Birmingham.—p. 267.

Disruption of Postoperative Abdominal Wounds.—

Donald analyzes twenty-seven cases of wound disruption that occurred at the Hillman Hospital during the last five years and five seen in private practice. The twenty-seven disruptions were encountered in 5,603 consecutive laparotomies, an incidence of 0.53 per cent. This figure probably does not represent the true incidence, as the cases are not all properly recorded. This is especially true of cases of incomplete disruption and those treated by strapping and not by secondary closure. Many hernias, not explained on the basis of gross infection, may be the result of unrecognized incomplete disruption. The incidence of disruption is probably higher than is generally recorded. Upper abdominal incisions disrupted in fifteen, or 47 per cent, of the group, midabdominal in six, or 19 per cent, and low abdominal in eleven cases, or 34 per cent. The greatest number of disruptions occurred in the winter months, suggesting the importance of respiratory infections and cough as an etiologic factor. Excessive intra-abdominal pressure, whether from cough, vomiting, distention or undue activity of the patient, appears to be the most important cause. Faulty or too quickly absorbable suture material, infection, hematoma, allergy and poor healing power of the tissues are thought to be secondary factors. Close observation of the wound will enable one to recognize disruptive treatment by strapping rather than a routine immediate secondary closure is recommended. The mortality rate in the author's series was 28 per cent; 33 per cent following secondary closure and 10 per cent following conservative treatment by strapping.

American Journal of Diseases of Children, Chicago

59: 459-692 (March) 1940
*Life Histories of Ninety-Five Children with Chronic Ulcerative Colitis: Statistical Study Based on Comparison with a Whole Group of 871 Patients. R. J. Jackman, J. A. Bargen and H. F. Helmholz, Rochester, Minn.—p. 459.
Disseminated Giant Cell Reaction: Possible Prodrôme of Measles. W. A. Stryker, Chicago.—p. 468.
Studies in Immunity. VI. Correlation of Reaction to Schick Test and Diphtheria Antitoxin Content of Blood Serum in Children with Scarlet Fever. C. E. Duffy and A. G. Mitchell, Cincinnati.—p. 479.
Effects of Natural and Refined Sugars on Oral Lactobacilli and Caries Among Primitive Eskimos. D. B. Waugh and L. M. Waugh, with technical assistance of Marjorie P. Waugh, New Orleans.—p. 483.
*Treatment of Pneumonia by Sulfapyridine and by Hydroxyethylapocupreine Dihydrochloride. Maud L. Menten, R. R. Macdonald and Natalie Brönykovsky, Pittsburgh.—p. 497.
Etiologic Studies of Sporadic Cases of Encephalitis Occurring in the St. Louis Area in 1938. Margaret G. Smith, E. H. Lennette and R. J. Blattner, St. Louis.—p. 509.
Treatment of Pertussis with Detoxified Antigen. N. M. Greenstein and W. Levy, New York.—p. 515.
Cerebral Sclerosis. A. B. Baker and L. S. Gerber, Minneapolis.—p. 522.
Basal Metabolism of Tuberculous Children: V. Tuberculous Pleurisy. Anne Topper and H. S. Rubin, New York.—p. 535.
Dextrose Tolerance Tests of the Newborn. Rose C. Ketteringham, Cleveland.—p. 542.
Neoplasms Producing Endocrine Disturbances in Childhood. R. E. Gross, Boston.—p. 579.

Life Histories of Children with Colitis.—Jackman and his colleagues have determined statistically the difference between the nature and the course of chronic ulcerative colitis of a group of ninety-five children less than 16 years of age and of a group

of 871 patients (children and adults), in which the ninety-five child patients were found. The 871 consecutive patients with the disease came to the Mayo Clinic between 1925 and 1931 inclusive. In the group of ninety-five patients who were less than 16 years old the disease was more common among boys (fifty-seven) than among girls. In the entire group there were 491 male and 380 female patients. There was a gradual increase in the number of patients who acquired the disease as the ages progress through to the age of 15. Approximately two thirds of the children experienced the onset of the disease after 9 years of age. The curve for the age incidence of all the patients suggests that the peak occurs during the late twenties, with a progressive decline as patients approach old age. The majority of patients dated the onset as well as the relapses of the disease as occurring during the months in which infections of the upper part of the respiratory tract are most prevalent. The geographic distribution of the patients was not significant. A majority of the children, as well as the adults, were unable to associate the onset of the disease with any definite predisposing factor. In seventy-three of the children colitis manifested itself in the severe or fulminating form, whereas only 427 of the whole group of patients fell in this classification. Forty-five of the children, or 47.4 per cent, had complicating factors, as compared to 41.3 per cent for the 871 patients. There were 148 deaths during the period of fourteen years among the 871 patients; that is, 17 per cent died before March 1, 1938. Of these, thirteen patients died from causes unrelated to their intestinal disease. Among the ninety-five children twenty-two, or 23.2 per cent, or indirectly by the intestinal disease. The average duration of life from the onset of the disease to death was nine years; the shortest period was three months and the longest twenty years. The condition of the patients when last observed was that 11.6 per cent of the children and 19.9 per cent of the whole group were symptom free. Active disease was present in 65.3 per cent of the children and 63.2 per cent of the adult group. Of the children 23.2 per cent were dead, as were 17 per cent of the adult group.

Sulfapyridine and Hydroxyethylapocupreine Dihydrochloride in Pneumonia.—Menten and her associates compare the therapeutic effects on pneumonia of sulfapyridine with those of hydroxyethylapocupreine dihydrochloride and compare both of these with the effects of symptomatic treatment alone. Seventy-nine patients with pneumonia were admitted to the Children's Hospital during the winter of 1938-1939. They were divided into three groups according to the therapy employed. Each group was subdivided into two subgroups, depending on the speed of recovery: 1. The first group consisted of children in whom the infection was apparently due to the pneumococcus alone and there was a speedy, dramatic fall of temperature to normal followed by rapid recovery. 2. In the second group the increased temperature was prolonged for about two weeks and showed wide daily fluctuations (from 99 to 105 F.) regardless of the type of treatment. These patients were toxic and acutely ill. Haemophilus influenzae was frequently cultured from their oropharyngeal swabs, and when these organisms were not obtained the patient's clinical course suggested their presence. Staphylococcus aureus was a secondary invader. A delayed resolution (up to five and six days) in some cases in which the pneumonia was supposedly caused by the pneumococcus alone may have been due to the presence of small numbers of Haemophilus influenzae. Because of mixed infection in some of the cases the authors doubt whether the three deaths in the control group as compared to one death in each of the other groups have much evaluating significance. The computed value of 2.9 days for the average duration of pyrexia before a drop to normal in the drug treated patients, as against 3.2 days for the controls, is likewise of questionable significance. Only the data on the children who responded readily to treatment and had forty-eight hours, crisis was the rule. In the children paralleled the drop in temperature in most cases, but the pulmonary involvement as indicated by roentgenograms resolved more slowly. Patients whose temperature responded promptly to treatment showed a rapid clinical improvement. This was

most pronounced with the patients receiving sulfapyridine. Nausea and vomiting were frequently observed after the administration of either drug. However, vomiting occurred frequently in children before specific treatment was given and also some of the control group vomited. Prompt relief and return of appetite followed discontinuance of the sulfapyridine. The gastric disturbances, especially among younger children, were more prolonged after the discontinuance of hydroxyethylapocupreine. Cyanosis, restlessness and irritability occurred with the use of sulfapyridine. There was no incidence of jaundice, granulocytopenia or cutaneous rashes. Toxic manifestations of the hydroxyethylapocupreine were confined to gastric symptoms.

American J. Obstetrics and Gynecology, St. Louis

39: 179-364 (Feb.) 1940. Partial Index

- Physiology of Anterior Pituitary and Note on Medullotrophic Hormone. J. B. Collip, Montreal.—p. 187.
- *Blood Lipids in Pregnancy. O. H. Schwarz, S. D. Soule and Bernice Dunie, St. Louis.—p. 203.
- Vulvovaginal Mycoses in Pregnancy: Relation of Symptoms to Genera and Species of Fungi. B. Carter, C. P. Jones, R. A. Ross and W. L. Thomas, Durham, N. C.—p. 213.
- Is There a Clinical Relationship Between Pyelitis of Pregnancy and Preeclamptic Toxemia? R. D. Mussey and S. B. Lovelady, Rochester, Minn.—p. 236.
- Rationale for Use of Testosterone Propionate in Immediate Treatment of Excessive Uterine Bleeding. A. R. Abarbanel, New York.—p. 243.
- Tracheloplasty (Sturmendorf Technique) in Treatment of Sterility. O. Moore, Charlotte, N. C.—p. 269.
- Chemotherapy in Obstetrics and Gynecology. R. G. Douglas, New York.—p. 275.
- *Study of Results in 332 Consecutive Cases of Placenta Praevia. I. A. Siegel, Baltimore.—p. 301.
- Study of 111 Cystograms for Diagnosis of Placenta Praevia. M. A. Carvalho, Binghamton, N. Y.—p. 306.
- *Vaginal Use of Aluminum Hydroxide and Colloidal Kaolin. S. P. Savitz, L. J. Golub and H. A. Shelanski, Philadelphia.—p. 329.
- *Use of Testosterone Propionate in Treatment of Menopausal Patient: Preliminary Report on Use of Pellets of Crystalline Testosterone Propionate. D. Silberman, H. M. Radman, Baltimore, and A. R. Abarbanel, New York.—p. 332.

Blood Lipids in Pregnancy.—Schwarz and his associates discuss the changes in blood serum lipid concentration from early pregnancy to term. A lipemia, characterized by a most marked increase in neutral fat and a lesser increment in cholesterol fractions and phospholipid, was observed during pregnancy. The rise in lipid content is gradual throughout the period of gestation. No significant changes in unsaturation of the phospholipid fatty acids or total fatty acids were observed. The ester cholesterol:total cholesterol ratio remained remarkably constant throughout. The phospholipid:total cholesterol ratio exhibited was quite variable but no constant change was noted. No apparent relation to weight gain of the mother or the fetus, hemoconcentration, seminarcosis or anesthesia was observed. A decrease in all lipid elements at delivery was frequent but not constant.

Placenta Praevia.—From an analysis of 332 cases of placenta praevia, treated at the University Hospital from 1920 to 1938 and from 1935 to 1938 at the Baltimore City Hospital, Siegel formulates the following conclusions: 1. The more frequent and liberal use of blood transfusion is paramount in reducing maternal mortality and morbidity. 2. The method of delivery must be determined for each individual case, depending on the type of placenta praevia and the condition of the cervix. 3. Forced delivery, internal version and breech extraction are condemned. 4. The rupture of membranes with or without the use of the Willett clamp will give favorable results in properly selected cases. 5. Cesarean section definitely reduces the maternal and fetal mortality in the central and partial types of placenta praevia and in certain selected cases of marginal placenta praevia. 6. The maternal mortality in the present series was 6.6 per cent in vaginal deliveries and 1.9 per cent in cesarean section deliveries. 7. Deaths of viable babies are greatly reduced by cesarean section.

Aluminum Hydroxide and Colloidal Kaolin for Douching.—Savitz and his collaborators investigated the action of colloidal kaolin and aluminum hydroxide gel when used as a vaginal cleanser in the form of a douche. The patient is instructed to use 15 Gm. of an aluminum hydroxide-colloidal kaolin mixture in 8 ounces (240 cc.) of water. After douching, the patient may use a rinse of several quarts of warm water. If continued action (mucus coagulating effect) is desired, the rinse may be applied several hours later. The douche may be

repeated as often as is desired without any harmful effect. The pH of the mixture is about 7. It supplies neither acid nor alkali to the vaginal tract. It is a neutral, mucus-coagulating, nontoxic, nonirritating substance. If acidity is desired therapeutically, it can be supplied by specific agents. Forty-three patients were given the douche chiefly for vaginal cleanliness, for leukorrhea due to a nonspecific infection in twenty-one (infection due to organisms other than *Neisseria gonorrhoea*, *Trichomonas vaginalis* and *Monilia albicans*), for fourteen cases of leukorrhea due to mild cervicitis, for twelve due to *Trichomonas vaginalis*, for eleven due either to moderate or to marked endocervicitis, for eight due to either moderate or marked exocervicitis, for six cases of salpingitis and for five cases of leukorrhea due to *Monilia albicans*. The douche has proved a successful cleanser in all these conditions. In trichomonas and monilia cases with marked tenderness, prohibiting immediate treatment, the use of the douche eases the irritation, so that the proper therapeutic measures can be applied. In salpingitis the patient uses 2 ounces (60 Gm.) of the mixture to 2 quarts of hot water every other day for as long as is desired. All the patients showed improvement after the use of this cleansing douche. Toxic or untoward reactions have not been observed.

Testosterone Propionate Implantation for Menopause Symptoms.—From their preliminary studies with the subcutaneous implantation of pellets of crystalline testosterone propionate for menopausal symptoms, Silberman and his colleagues feel that this procedure will eventually supplant the other methods of administering the substance except possibly in mild cases. It has yielded by far the smoothest and most consistent results and from the patients' point of view will prove the most economical one.

American Journal of Ophthalmology, St. Louis

23: 127-244 (Feb.) 1940

- Effect of Intravenous Injection of Nonspecific Proteins on Experimental Corneal Ulcers. E. Gallardo and R. Thompson, New York.—p. 127.
- Salzmann's Nodular Corneal Dystrophy: Report of Case. E. B. Muir, Salt Lake City.—p. 138.
- Syphilitic Primary Optic Atrophy: II. General Considerations and Results of Treatment by Standard Methods, Especially Subdural Treatment and Induced Fever: Critical Review. J. E. Moore and A. C. Woods, Baltimore.—p. 145.
- Metastatic Malignant Melanoma of Retina. Ella M. Uhler, Baltimore.—p. 158.
- Essential Atrophy of Iris: Pathologic Report. B. Rones, Washington, D. C.—p. 163.
- Comparative Study of Benzedrine, Paredrine and Cocaine with Homatropine as Cycloplegics. E. B. Weinman and F. B. Fralick, Ann Arbor, Mich.—p. 172.
- Bilateral Plexiform Neuromas of Conjunctiva and Medullated Corneal Nerves: Report of Case. M. P. Koke and A. E. Braley, Iowa City.—p. 179.
- Midline Notching in Normal Field of Vision. H. L. Bair and R. D. Harley, Rochester, Minn.—p. 183.

Archives of Internal Medicine, Chicago

65: 221-464 (Feb.) 1940

- *Hypertrophy and Hyperplasia of Islands of Langerhans in Infants Born of Diabetic Mothers. E. B. Helwig, Boston.—p. 221.
- Adjustments in Coronary Circulation After Experimental Coronary Occlusion, with Particular Reference to Vascularization of Pericardial Adhesions. H. B. Burchell, Rochester, Minn.—p. 240.
- Mechanism of Digitalis Action in Abolishing Heart Failure. H. Gold and M. Cattell, New York.—p. 263.
- Comparative Study of Valvular Calcifications in Rheumatic and in Non-rheumatic Heart Disease. B. S. Epstein, Brooklyn.—p. 279.
- Electrocardiographic Changes Associated with Pericarditis. P. H. Noth, Detroit, and Arlie R. Barnes, Rochester, Minn.—p. 291.
- *Pure Mitral Stenosis in Young Persons. B. J. Walsh, E. F. Bland and T. D. Jones, Boston.—p. 321.
- An Acoustical Study of the Stethoscope. F. D. Johnston and E. M. Kline, Ann Arbor, Mich.—p. 328.
- Atypical Facial Neuralgia: Diagnosis, Cause and Treatment. M. A. Glaser, Los Angeles.—p. 340.
- Gastroscopy and Phytobezoar: Report of Case of Dioxyphytozoar. D. C. Browne and G. McHardy, New Orleans.—p. 368.
- Renal Calcification Accompanying Pyloric and High Intestinal Obstruction. H. Martz, Brooklyn.—p. 375.
- Diseases of Metabolism and Nutrition: Review of Certain Recent Contributions. R. M. Wilder, H. C. Browne and H. R. Butt, Rochester, Minn.—p. 390.

The Pancreas in Infants Born of Diabetic Mothers.—To determine whether an adequate structural basis existed for the assumed hyperinsulinism of infants born of diabetic mothers, Helwig studied the pancreatic islands of nine infants of diabetic and nine infants of normal mothers. Approximately ninety serial

sections from a block of tissue selected at random were cut and stained with phloxine and methylene blue. The glands of the two series were measured and calculated in the same way, making the results reasonably comparable. The islands of Langerhans in the infants of diabetic mothers exhibited a variable degree of hypertrophy and hyperplasia, most marked in those infants nearing full term at birth. The nuclei were frequently enlarged and occasionally hyperchromatic. The stroma and to a less degree the islands were infiltrated with eosinophilic granulocytes, many of which were mature. This infiltration was not present in the control group. One infant in the control group, whose mother was not known to have diabetes, showed hypertrophy and hyperplasia of the islands and no obvious anatomic cause of death. Apparently some infants of diabetic mothers have definitely larger amounts of insular tissue than those of nondiabetic mothers. This is particularly marked in infants whose greater birth weight suggests a possible excess growth stimulus. However, a fair number of the pancreases of infants of diabetic mothers will fall in the normal range of insular size. The determinations of blood sugar on the whole show little correlation with insular size.

Pure Mitral Stenosis in Young Persons.—Walsh and his associates point out that of 1,700 children and adolescents with rheumatic fever observed at the House of the Good Samaritan in Boston since 1920 eighty-one acquired physical signs of so-called pure mitral stenosis. The signs consisted of (1) a low pitched (often coarse) murmur at the cardiac apex, which begins in mid or late diastole and ends with a crescendo in (2) an abrupt, slapping first sound. Changing physical signs in the heart prior to the stage of pure mitral stenosis were observed in forty-eight. These were subdivided into two groups according to the presence or the absence of demonstrable cardiac involvement with the initial attack of rheumatic fever. Twenty-seven patients had auscultatory signs of valvular disease from the onset. In five these signs consisted of a loud, blowing systolic murmur at the apex (mitral regurgitation); in fifteen of a loud systolic murmur and a poorly defined diastolic rumble at the apex; in four of a short, low pitched diastolic murmur after the third heart sound at the apex, without crescendo or accentuation of the first sound and without an accompanying systolic blow, and in three of a slight diastolic blow after the second sound at the base, usually best heard to the left of the upper portion of the sternum and unassociated with murmurs at the apex. A similar murmur was present in fifty-three of the eighty-one cases in addition to the aforementioned signs of involvement of the mitral valve. The second subgroup consisted of twenty-one patients who on recovery from their initial rheumatic fever had no clinical evidence of cardiac involvement—cases of so-called potential rheumatic heart disease. The first evidence of mitral stenosis to appear in two of these was a systolic murmur at the cardiac apex consistent with mitral regurgitation. This progressed slowly to the next stage: apical systolic and diastolic murmurs of mitral regurgitation and stenosis. In three additional cases the latter combination appeared directly as the first indication of heart disease. Later, over a period of years, the systolic murmur gradually became less loud and ultimately disappeared as the diastolic murmur and first heart sound acquired the characteristics of pure stenosis. In the remaining sixteen cases the earliest physical sign to appear was a short mid diastolic murmur following a rather prominent third sound at the apex of the heart. This slight apical diastolic murmur slowly evolved into the characteristic crescendo presystolic murmur of mitral stenosis, unaccompanied by a systolic murmur. In relatively few instances (five) did pure mitral stenosis become established in the first five years after the onset of rheumatic fever. In twenty-seven it developed during the second five years, and in fourteen the characteristic signs did not become established until the third or fourth five years. In two cases the pure mitral stenosis was established more than twenty years after the original illness. The observations are in close agreement with previously recorded postmortem studies, in which it was shown that the ultimate development of extensive valvular deformity of the mitral orifice (either with or without actual stenosis) probably requires a minimum of two years, and in most instances a considerably longer period. The rheumatic fever of the eighty-one patients was characterized by a mild course. In the light of their observations on this

deformity the authors believe that the unusually high percentage of older patients with a "negative" rheumatic history is more readily understood. Even in some of their younger patients, under close observation at the time of their active disease, it has been impossible to identify clearly as rheumatic fever their mild illness prior to the appearance of characteristic signs in the heart. It is probable that the favorable course of the illness in the majority of these patients (both young and old) is to be accounted for by the mild rheumatic fever, which in turn favors the continued integrity of the myocardium.

Archives of Physical Therapy, Chicago

21: 65-128 (Feb.) 1940

- Backache: Common Causes and Treatment, with Special Reference to Physical Therapy. H. W. Meyerding and G. A. Pollock, Rochester, Minn.—p. 69.
Cross Firing Technic in Short Wave Therapy. P. Bauwens, London, England.—p. 80.
Newer Aspects of Dosage and Technic in Short Wave Diathermy. D. Kobak and E. Mittelman, Chicago.—p. 87.
Peripheral Vascular Diseases: Diagnosis and Treatment by Passive Vascular Exercises. A. Silverglade, Oakland, Calif.—p. 100.

Canadian Medical Association Journal, Montreal

42: 109-208 (Feb.) 1940

- Antidiabetogenic Effect of Primary Alcoholic Extract of Pituitary Tissue Administered Orally. J. B. Collip, Montreal.—p. 109.
Interactions Between Various Steroid Hormones. H. Selye, Montreal.—p. 113.
Contribution of Electron Microscope to Medicine: I. Electron Microscope Described. E. F. Burton, J. Hillier and A. Prebus, Toronto.—p. 116.
Sarcoma of Prostate: Report of Case of Rhabdomyosarcoma. H. E. Taylor, Glasgow, Scotland.—p. 120.
Hereditary Jaundice in the Rat. Helga Tait Malloy and L. Lowenstein, Montreal.—p. 122.
Laughlin Test and Blood Donors. P. H. Greey, M. M. Bracken and E. Paul, Toronto.—p. 126.
Rheumatic Heart Disease in Adolescence. R. R. Struthers, Montreal.—p. 128.
The Care of the Premature Child. W. M. Wilson, Windsor, Ont.—p. 133.
*Early Introduction of Solid Foods in Infant Diet. Doris Monypenny, Toronto.—p. 137.
Use of Colloidal Aluminium Hydroxide in Treatment of Peptic Ulcer. J. F. McIntosh and C. G. Sutherland, Montreal.—p. 140.
Dysmenorrhea. E. V. Shute, London, Ont.—p. 145.
Modern Treatment of Nervous Syphilis. A. Marin, Montreal.—p. 152.
Interpretation of Factor of Latency in Syphilis. F. E. Cormia, Montreal, and J. A. Lewis, London, Ont.—p. 154.
Acute Gallbladder: Early versus Late Operation. G. H. Stobie, Belleville, Ont.—p. 158.
Acute Hematogenous Osteomyelitis. R. H. McCoy and D. E. Ross, Montreal.—p. 162.
Clinical Value of Autopsies. R. E. Shaw and W. J. Deadman, Hamilton, Ont.—p. 168.

Early Introduction of Solid Foods to Infant Diets.—Monypenny observed the effects of adding egg, pabulum and strained vegetables to the diets of ninety-one infants at the age of 1 month. The majority of these infants were fed artificially from 2 weeks of age and all were artificially fed after 3 months. It was surprising how eagerly some infants, even at 1 month of age, took the first solid feeding. Spoon feeding was established with less difficulty at 1 month of age than at 5 or 6 months. New solids were usually introduced with greater ease at 5 months when spoon feeding had been started at 1 month. Of the seventeen infants placed on egg, only one seemed more contented with egg in the feeding than before, and this infant had loose stools. Diarrhea, vomiting and discomfort occurred following the addition of egg in 41 per cent of the cases and gave the impression that egg added early to the infant's diet should be done with the greatest of caution. The addition of 15 Gm. of dry pabulum to the diet of twenty-seven infants improved disturbed stools and in two instances was more effective than protein milk in correcting the stools. There was no laxative action. Many of the infants seemed more satisfied and slept better. The impression was that pabulum could be added to the infant's diet at 1 month of age with safety. Vegetables given at 1 month of age to eighteen infants with normal stools did not cause looseness. When the stools were previously constipated they were improved. No infant having loose stools at 1 month of age was placed in this group. Discomfort did not follow the addition of vegetables, and sometimes the baby seemed more satisfied. Therefore it seemed that vegetables could be safely added at this early age to the diet of infants with previously good stools. The remaining twenty-nine infants served as controls and were fed milk dilutions with no addition of solids.

Journal of Investigative Dermatology, Baltimore

3: 1-78 (Feb.) 1940. Partial Index

- Hereditary Hypotrichosis in Rat (*Mus Norvegicus*). E. Roberts, J. H. Quisenberry and L. C. Thomas, Champaign, Ill.—p. 1.
- *Metabolic Studies on Patients with Pemphigus. J. H. Talbott, W. F. Lever and W. V. Consolazio, Boston.—p. 31.
- Influence of Diets of Varying Fat Content on Experimentally Produced Cutaneous Infections in White Rats. J. L. Callaway and R. O. Noojin, Durham, N. C.—p. 71.

Metabolic Studies on Patients with Pemphigus.—Talbott and his colleagues state that the pathogenesis of pemphigus is intimately connected with one or more metabolic disturbances. Abnormal concentration of the following constituents was found in the serum of ten patients with acute pemphigus: sodium, total fixed base, potassium, protein and nonprotein nitrogen. These concentrations are consistent with acute adrenal insufficiency. An increase in plasma, blood and interstitial fluid volumes was observed in all cases in which there were generalized cutaneous lesions. Five of the patients with acute pemphigus were given supportive or nonspecific treatment only. Death followed in from eleven days to eight weeks after the onset of the acute symptoms. Postmortem examinations were allowed on three. Damage to the adrenal glands was evident in two. The remaining five with acute pemphigus were given large amounts of adrenal cortex extract and sodium chloride solution parenterally. Clinical improvement followed with restoration of the acid-base changes. Two patients have had a remission which has persisted for three and one half and three years respectively, without further treatment. A remission was achieved in the other patients on this regimen but it persisted only as long as active material was administered. Eventually this became ineffective. The changes in the concentration of constituents in the blood of the patients with chronic pemphigus were less constant. The therapeutic data on these patients were not conclusive.

Journal of Lab. and Clinical Medicine, St. Louis

25: 445-556 (Feb.) 1940. Partial Index

- Blood Pigments: Properties and Quantitative Determination, with Special Reference to Spectrophotometric Methods. H. O. Michel and J. S. Harris, Durham, N. C.—p. 445.
- Relation of Dietary Calcium-Phosphorus Ratio to Iron Assimilation. H. D. Anderson, K. B. McDonough and C. A. Elvehjem, Madison, Wis.—p. 464.
- Transfusions and Polycythemia in Normal and Tumor Bearing Rats. F. M. Allen, New York.—p. 471.
- Does Hemolytic Streptococcus Infection or Sulfanilamide Affect the Alpha Hemolysin of Serum? Emily May Bixby, Wrentham, Mass.—p. 476.
- *Vitamin A Deficiency in Diseases of Liver: Its Detection by Dark Adaptation Method. M. G. Wohl and J. B. Feldman, Philadelphia.—p. 485.
- Value of "Repeat" Injection of Tetanus Toxoid (Secondary Stimulus) in Active Immunization Against Tetanus. H. Gold, Chester, Pa.—p. 506.
- Histidine Content (Dialysis Value) of Blood in Peptic Ulcer. E. G. Schmidt, Baltimore.—p. 512.
- Contribution to Question of Determination of Nicotinic Acid in Urine. L. Schindel, Jerusalem, Palestine.—p. 515.
- Improved Method for Iodimetric Determination of Pyruvic Acid. G. A. Schrader, Auburn, Ala.—p. 520.
- Prothrombin Time Determination. O. R. Kelley and W. E. Bray, Charlottesville, Va.—p. 527.
- The Lange Test: II. Influence of Particle Size and Hydrogen Ion Concentration of Gold Sols on Lange Test Readings on Syphilitic and Tabetic Spinal Fluids. P. K. Glasoe and C. H. Sorum, Madison, Wis.—p. 534.
- Method of Destroying Blastocysts (*Blastocystis Hominis*) in Fecal Wet Smears in Order to Facilitate Examination for *Endamoeba Histolytica*. E. G. Hakansson, Washington, D. C.—p. 546.
- Capillary Hematocrit Method of Determining Blood Cell Volume. C. J. Hamre, Honolulu, Territory of Hawaii.—p. 547.

Vitamin A Deficiency in Diseases of Liver.—Wohl and Feldman detected early the occurrence of vitamin A deficiency in twenty-five patients with hepatic disease. In the absence of retinal, chorioidal or other ocular pathologic changes a delay in dark adaptation above the normal and specified time is called a functional or latent pathologic dark adaptation and is attributed to avitaminosis A. Ten patients addicted to alcohol, without clinical evidence of hepatic disease, were also examined. In twenty-one of the patients with hepatic disease the dark adaptation time was above normal. These patients showed varying degrees of hepatic damage. Of seven patients with hepatocellular jaundice three presented a normal dark adaptation and a minimal degree of liver damage and four showed evidence of hepatic damage and pathologic dark adaptation. In these four cases the degree of liver damage, as evidenced by the icterus index and other laboratory studies, appeared to run parallel with the dark adap-

tation. Nine of the ten alcohol addicts showed vitamin A deficiency as revealed by dark adaptation studies. The tenth person, whose dark adaptation was normal, was receiving desiccated thyroid at the time the test was made.

Journal of Neurophysiology, Springfield, Ill.

3: 107-188 (March) 1940

- Facilitation and Difficultation Elected by Nerve Impulses in Peripheral Fibers. J. Erlanger and E. A. Blair, St. Louis.—p. 107.
- Human Cortical Area Producing Repetitive Phenomena When Stimulated. R. M. Brickner, New York.—p. 128.
- Effects of Eserine, Acetylcholine and Atropine on Electrocorticogram. F. R. Miller, G. W. Stavraky and G. A. Wootton, London, Ont.—p. 131.
- Cord Potentials in Spinal Shock: Single Volleys. Winifred B. Stewart, J. Hughes and G. P. McCouch, Philadelphia.—p. 139.
- Id.: Multiple Stimuli. J. Hughes, G. P. McCouch and Winifred B. Stewart, Philadelphia.—p. 146.
- Id.: Crossed Effects in Monkey *Macaca Mulatta*. G. P. McCouch, Winifred B. Stewart and J. Hughes, Philadelphia.—p. 151.
- Attempt to Produce Sleep by Diencephalic Stimulation. F. Harrison.—p. 156.
- Relayed Impulses in Ascending Branches of Dorsal Root Fibers. J. B. Hursh, New York.—p. 166.
- Observations on Diaphragmatic Sensation. J. C. Hinsey and R. A. Phillips, New York, with report of case by W. K. Livingston, Portland, Ore.—p. 175.
- Phasic Response to Cortical Stimulation. C. G. Smith, F. A. Mettler and E. A. Culler, Rochester, N. Y.—p. 182.

Journal of Pediatrics, St. Louis

16: 139-274 (Feb.) 1940

- *Vitamin A Absorption in Catarrhal Jaundice. B. B. Breese and Augusta B. McCoord, Rochester, N. Y.—p. 139.
- Basal Metabolism of Obese Children. N. B. Talbot and J. Worcester, Boston.—p. 146.
- Serial Blood Sugar Determinations in Normal Newborn Infants. J. B. McKittrick, Boston.—p. 151.
- *Incidence of Skin Eruptions Among Infants and Preschool Children. S. H. Silvers, Brooklyn, and M. Coe, Queens Village, N. Y.—p. 160.
- *Use of Convalescent Mumps Serum. G. W. Kutscher Jr., Asheville, N. C.—p. 166.
- Vollmer Tuberculin Patch Test: Evaluation of Its Relative Sensitivity. J. G. Hughes, Memphis, Tenn.—p. 171.
- Effects on Monkeys of Sulfapyridine in Doses Comparable with Those Used for Infants. J. A. Toomey, H. S. Reichle and W. S. Takacs, Cleveland.—p. 179.
- Chronic Gaucher's Disease. H. H. Perlman, Philadelphia.—p. 191.
- Congenital Cystic Dilatation of Single Kidney Calix. L. B. Hart, Beckley, W. Va.; E. I. Dobos and R. P. Forbes, Denver.—p. 206.
- Thyroid Deficiency in Twins. H. Hosen, Port Arthur, Texas.—p. 210.
- Cabinet Cubicle for Infants, Combining Isolation with Control of Temperature and Humidity. C. C. Chapple, Philadelphia.—p. 215.
- Psychologic Care of the Preschool Child. Ruth Morris Bakwin and H. Bakwin, New York.—p. 220.

Vitamin A Absorption in Catarrhal Jaundice.—Breese and McCoord found that the absorption of vitamin A was abnormal in diseases of the liver and in celiac disease. A study of twenty-one patients with catarrhal jaundice showed that the first vitamin A absorption test was normal for six. In the remaining children either the vitamin was absorbed poorly or the rise in the blood was found to be much higher than normal. The original test showed an unusually high rise in the vitamin A of the blood in two cases. The first test showed failure of normal absorption in twelve cases; when the test was repeated seven cases returned to normal levels, four showed a rise of vitamin A above normal and one showed improvement but not normal absorption. There was one fatal case in which only one determination of vitamin A was made. This value was low. Ten of fourteen patients tested within nine days of the onset of the disease failed to absorb vitamin A well, whereas, only three of sixteen patients tested at least ten days or more after the onset failed to do so. Eleven of fifteen patients who were tested, while not improving from a clinical standpoint, failed to absorb vitamin A well, whereas such was found in only one of thirteen patients tested while improving. The icteric index did not bear any obvious relation to vitamin A absorption. Severe degrees of hepatic damage, as measured by the bromsulphalein test, were associated in three cases with failure to absorb vitamin A, whereas lesser degrees of damage were not. Patients with low curves who were given bile salts and retested showed improvement in absorption. In most cases this improvement was maintained when the test was repeated again without the use of bile salts.

Cutaneous Eruptions Among Children.—Silvers and Coe determined the incidence of cutaneous eruptions in 1,696 children from 3 or 4 weeks to 6 years of age. The material for the study was obtained from two baby health stations in New York City. The infants were brought in nine or ten times during the first

year and about four times during the second year. The babies were representative of metropolitan New York. All races (18 per cent of the group studied were Negroes) and nationalities were included. Only those children who attended regularly and kept their appointments were included in the study. Among the 1,696 children 349, or 21 per cent, were found to have some cutaneous ailment. Some of the complaints (thirty-five different diagnoses were made) were of fleeting nature, such as miliaria, gluteal dermatitis, papular urticaria or intertriginous eruptions, while others were of a more permanent nature, such as the various forms of nevi, verrucae or seborrheic and infantile eczemas. Of the 825 babies less than 1 year of age, 246 (29.9 per cent) showed cutaneous eruptions. The percentage of eruptions among the Negro children was appreciably lower than among the white ones. The largest group of cutaneous eruptions encountered was the infantile eczema group, which included all stages. Often the same child progressed from the very mild to the severest stages or vice versa. Whenever possible, an attempt was made to correct any errors in the child's nutrition. Rarely was it necessary to withhold any basic food. They tried to limit the child's clothing and bedding to linen and cotton. Their experience has shown that topical applications for the treatment of infantile eczema are not skilfully applied and that the first thought is usually to experiment with dietary regimens, occasionally with disastrous results to the child's development. One should be able to manage the eruption in most cases by local applications. Stopping the use of soap and water and instituting the application of a neutral powder brought a complete cure in the majority of cases of folliculitis with dermatitis of the face. The authors believe that intertriginous erythema and gluteal erythema of Jaquet are different stages of the same eruption. In many of their cases they coexisted, or the gluteal followed the intertriginous erythema. To counteract these eruptions they recommended the earliest possible training of the toilet habit, frequent changes of diapers, rinsing them in boric acid water after washing, application of liberal amounts of a neutral powder to the areas after thorough rinsing off with water of all soap solution, and the elimination of rubber panties. Overdressing infants in too many woolen, silk and rayon clothes is, in their experience, a common cause of many cutaneous eruptions.

Convalescent Mumps Serum.—Kutschler attributes the infection incidence of only 2 per cent of fifty-one boys exposed to mumps as due to the use of from 8 to 10 cc. of convalescent mumps serum. The reported incidence of from 30 to 50 per cent in exposed and susceptible children following exposure to mumps would have put the expectancy of infection between fifteen and twenty-five boys.

Journal of Pharmacology & Exper. Therap., Baltimore

68: 217-300 (Feb.) 1940. Partial Index

Effect of Selenium on Urease and Arginase. C. I. Wright, Washington, D. C.—p. 220.

*Influence of Epinephrine on Shivering and on Metabolism in the Cold. V. E. Hall and P. B. Goldstone, Stanford University, Calif.—p. 247.

Administration of Drugs in Food for Chemotherapy Studies in Mouse Pneumococcal Infections. R. N. Bieter, W. P. Larson, Elizabeth M. Cranston, Minneapolis, and M. Levine, Washington, D. C.—p. 252.

Experimental Studies in Chemotherapy of Pneumococcal Infections, Including Hydroxyethylapocupreine, Sulfapyridine and Certain Other Related Chemical Compounds. M. M. Bracken, J. M. Johnston, Pittsburgh; G. E. Crum, Crafton, Pa.; D. R. Patrick, H. H. Permar and W. W. G. MacLachlan, Pittsburgh.—p. 259.

Dietary Protein and Toxicity of Sodium Selenite in the White Rat. H. B. Lewis, J. Schultz and R. A. Gortner Jr., Ann Arbor, Mich.—p. 292.

Influence of Epinephrine on Shivering and Metabolism.—Hall and Goldstone find that, in cooled pentobarbitalized cats, epinephrine in doses just in excess of the physiologic rate of secretion suppresses shivering and consequently reduces the total metabolism by decreasing the amount of oxygen consumed by this activity. They attribute these effects to a depression, by epinephrine, of the central motor mechanisms involved in shivering.

Kansas Medical Society Journal, Topeka

41: 45-88 (Feb.) 1940

Prognosis in Heart Disease. J. Jensen, St. Louis.—p. 45.

Appendicitis in Children. E. O. Parsons, Kansas City, Mo.—p. 51.

Observations on Eyes During Insulin Shock Treatment. L. S. Powell, Lawrence; M. E. Hyde and J. Russell, Oswatimie.—p. 55.

Bismuth Poisoning from Bismuth (Subnitrate) Given Orally: Report of Case. J. A. Bena, Pittsburg.—p. 60.

Meralgia Paraesthetica Following Chigger Bite. M. A. Walker, Kansas City.—p. 61.

Medical Annals of District of Columbia, Washington

9: 37-70 (Feb.) 1940

*Practical Considerations of Immunity in Syphilis. J. E. Kemp, Chicago.—p. 37.

Nervous and Mental Components of Gastrointestinal Diseases. N. D. C. Lewis, New York.—p. 42.

Hemorrhagic Adnexal Lesions Producing "Acute Abdomen" with Intra-peritoneal Hemorrhage. J. K. Croner, Washington.—p. 48.

Dermatitis from a Sanitary Belt: Report of Case. I. L. Sandler, Washington.—p. 53.

Alcoholism and the Heart. W. M. Yater and J. Wallace, Washington.—p. 54.

Immunity to Syphilis.—The resistance developed to syphilis has, according to Kemp, certain characteristics which distinguish it from resistance developed to other diseases. 1. Time is a prerequisite for its development; that is, immunity does not become evident until the infection has been present for some weeks. 2. Treatment inaugurated before the immune stage is established may abruptly terminate or at least delay its development. Of eighty-one cases of reinfection, 56.8 per cent occurred in individuals treated for their first infection before the forty-sixth day, in 40.7 per cent of those first treated between the forty-sixth and ninety-first day and in only 2.5 per cent of those in whom treatment was not begun until after the ninety-first day. Experimental studies showed that, as in man, the longer the first infection was allowed to continue untreated the less successful were the attempts to implant a second infection. It must not be inferred that late syphilis always confers an immunity to a second infection. 3. The most striking examples that time is necessary for the development of immunity and that treatment of early syphilis terminates or retards its development are those tragic happenings the neurorecurrences. The majority of these episodes follow the same pattern—an individual with early syphilis receives a few treatments and then lapses. Within nine days to two weeks after his last treatment he reappears with multiple or single cranial nerve palsies. The treatment received was sufficient to prevent the development of his own resistance but was insufficient to eradicate the infection in his neuraxis. When, therefore, the spirochetes remultiplied, they encountered a virtually defenseless host bringing about a series of events much more severe than would have been encountered had no treatment been received. The ultimate outcome in cases in which neurorecurrences develop has been reported to be much less favorable than in cases in which clinical neurosyphilis is not so precipitate. 4. There are a certain number of individuals in whom, after the secondary eruption has healed, the disease will remain latent throughout their lives. They develop and maintain a lasting and effective resistance to their infection. In the remaining individuals resistance will terminate with the development of late lesions of the central nervous system, the cardiovascular system, bones, eyes and the like. When this occurs it represents a breakdown in the individual's immunity. The development of the lesion of late syphilis does not indicate a complete breakdown in the individual's resistance, as in the majority of instances only one type of tissue is affected and often this involvement is only partial. This tendency to breakdown is one of the important characteristics of immunity in syphilis. Regarding syphilis of the central nervous system, the immunity which develops after inadequate treatment of early syphilis is inferior to that of untreated syphilis. 6. Different tissues do not share equally in the resistant state. The frequency of neurosyphilis in contrast to the infrequency of syphilis of the stomach, for example, suggests something more than a mere predilection of the spirochete for nervous tissues, particularly since all the tissues are apparently equally involved in the dissemination of the organisms during early infection. 7. The two factors of known importance in influencing the course of the infection are race and sex. In only one important category, that of cardiovascular syphilis, is the defense of the white individual (7.4 per cent) superior to that of the Negro (11.5 per cent). The increased severity of syphilis in men as compared to women is a striking illustration of the ability of the latter to protect themselves against the disease. Approximately 60 per cent more women than men reach a stage of latency in which positive serologic tests are the only evidence of infection. Pregnancy is not the only factor responsible for the milder course of syphilis in women. Recent experimental investigation on rabbits has favorably altered the course of syphilis by the administration of

estrogenic substances. The course of syphilis in castrated female rabbits was more severe than in normal female rabbits. These observations suggest that the female sex hormones may be responsible for the milder course of syphilis in women than in men.

Medicine, Baltimore

19:1-160 (Feb.) 1940

Tularemia: Summary of Certain Aspects of Disease Including Methods for Early Diagnosis and Results of Serum Treatment in 600 Patients. L. Foshay, Cincinnati.—p. 1.

*Infectious Mononucleosis. A. Bernstein, Baltimore.—p. 85.

Infectious Mononucleosis.—Bernstein considers infectious mononucleosis in the light of the broadened concept which the Paul-Bunnell test has supplied. When the variety of antibodies which may be elicited in the course of infectious mononucleosis is considered, it is plain that the etiologic agent must be rather unique in this respect. If this organism should be of such a character as to serve as the basis of a vaccine, this material might well prove to be an invaluable agent for the purposes of stimulating a broad nonspecific protective response against infections in general. A plea is made for a wider routine performance of the Paul-Bunnell test, not only as a confirmatory procedure in infectious mononucleosis or as one of the diagnostic agglutination tests in instances of "fever of unknown origin," but likewise when the following conditions exist: (1) unexplained lymphocytosis or glandular enlargement, (2) positive agglutination tests (Widal and the like) without cultural confirmation, (3) false positive Wassermann reaction, (4) unexplained acute conditions of the abdomen, (5) enlarged spleen, (6) atypical conjunctivitis or puffy eyelids and (7) apparent cases of catarrhal jaundice, hemorrhagic purpura, Vincent's infection, aphthous stomatitis, benign lymphocytic meningitis and granulocytopenia. By adopting such an attitude of suspicion, further manifestations of infectious mononucleosis will be unearthed and additional clues disclosed pointing toward its etiology. Infectious mononucleosis, glandular fever, monocytic angina and lymphoid cell angina are probably different manifestations of the same disease, the etiology of which is unknown.

Mental Hygiene, Albany, N. Y.

24:1-176 (Jan.) 1940

How May the Community Utilize Its Gifted Children? H. W. Zorbaugh, New York.—p. 1.

Errors and Problems in Psychiatry. A. Myerson, Boston.—p. 17.

Group Therapy. S. R. Slavson, New York.—p. 36.

Effects of Incarceration on the Adult Criminal as Observed in a Psychiatric Court Clinic. C. B. Thompson, New York.—p. 50.

Social Factors in Delinquency. C. W. Henry and A. A. Gross, New York.—p. 59.

Loving versus Spoiling Children. M. D. Riemer, Brooklyn.—p. 79.

Some Industrial Placements of Women Patients Paroled from State Hospital. Ethel B. Bellsmith, Central Islip, N. Y.—p. 82.

Convergence of Social Work and Psychiatry: Historical Note. A. Deutsch, New York.—p. 92.

College Fraternity and Adjustment. F. G. Livingood, Chestertown, Md.—p. 98.

Sensory Level in Hygienic Integration. J. E. Davis, Perry Point, Md.—p. 107.

Use and Effect of Alcohol in Relation to Alcoholic Mental Disease Before, During and After Prohibition. H. M. Pollock, Albany, N. Y.—p. 112.

New England Journal of Medicine, Boston

222:247-288 (Feb. 15) 1940

Clinical Measures in Control of Syphilis. R. A. Vonderlehr, Washington, D. C.—p. 247.

Rupture of Retroperitoneal Duodenum: Report of Case. E. J. Ottenheimer, Williamantic, Conn., and R. L. Gilman, Storrs, Conn.—p. 251.

*Factors Influencing Persistent and Recurrent Hyperthyroidism. D. D. Berlin and S. L. Gargill, Boston.—p. 254.

Dental Problems Associated with Pregnancy. C. P. Sheldon, Boston.—p. 260.

*Clinical and Laboratory Study of Incidence of Fungi in Patients with Cutaneous Eruptions. J. G. Downings, Beulah Merrill and D. L. Belding, Boston.—p. 263.

Abdominal Surgery. A. W. Allen, Boston.—p. 266.

Persistent and Recurrent Hyperthyroidism.—According to Berlin and Gargill, the problem of persistent and recurrent thyrotoxicosis following apparently adequate subtotal thyroidectomy has been discussed ever since the surgical treatment of toxic goiter was standardized. Attempts to solve this problem have varied considerably. Some workers, impressed with the

fact that toxic goiter is a constitutional disease of unknown etiology, have advocated the treatment of the unique personality of the patient. Crile, who perceives a biologic relation between recurrent thyrotoxicosis, neurocirculatory asthenia and peptic ulcer, has advocated his dekineticizing operation of bilateral denervation of the adrenals. Others conceive the solution of the problem in adequate thyroidectomy. Scott advocates a total thyroidectomy. The authors studied 235 cases of toxic goiter in which operation was performed at the endocrine clinic of the Beth Israel Hospital from 1932 to 1938. The incidence of persistence and recurrence was 5.1 per cent. W. O. and Phebe K. Thompson and A. E. Morris reported an incidence of 19.5 per cent in a similar series of 190 cases. One of the reasons for the low incidence in the authors' series is that a radical subtotal thyroidectomy has been performed in most of the cases. Another factor may be that the majority of cases have not been followed for a sufficiently long time. It is possible that more of these cases will show recurrence at a later date. The factors probably responsible for persistence and recurrence in this series have been found to be an inadequate thyroidectomy, the unique personality and fundamental imbalance of patients with exophthalmic goiter, frequent upper respiratory infections, and psychic trauma from marital infelicity or financial insecurity. No case of either persistent or recurrent thyrotoxicosis has been observed following subtotal thyroidectomy for toxic nodular goiter. Neither the age, the sex, the initial basal metabolic rate nor the degree of response to iodine appeared to have any part in persistence or recurrence of thyrotoxicosis. The symptoms and signs of many patients with persistent or recurrent thyrotoxicosis can be controlled fairly completely by iodine medication, either alone or in combination with roentgen treatment. Nevertheless the ideal treatment for recurrent and persistent thyrotoxicosis, especially when there is marked degeneration of thyroid tissue, is a maximal or total excision of the thyroid remnants. Such a procedure is likely to result in postoperative myxedema, but this can be satisfactorily controlled by thyroid medication. The incidence of permanent postoperative myxedema in this series was only 3.9 per cent, in spite of the fact that most of the patients had radical subtotal thyroidectomies.

Incidence of Fungi in Cutaneous Eruptions.—Downing and his associates state that 476 patients with cutaneous eruptions were examined from July 1, 1938, to July 1, 1939, at the dermatologic clinic of the Boston City Hospital for the presence of fungi. The existence of fungous infection was suspected in most of the cases. Scrapings were taken from the skin not only at the site of the lesion but elsewhere, for example the feet. Direct microscopic examination of the scrapings from the lesions in cover glass mounts with 20 per cent potassium hydroxide and cultures on Sabouraud's medium were made. The cultural methods were the more informative, since they permitted the identification of species as well as of genera. The value of direct microscopic examination was evident in cases of tinea versicolor, since cultivation of the causative organism was unsatisfactory. The results were positive in 179, or 37.6 per cent, of the 476 cases; 73.7 per cent of the total positives were obtained by direct microscopic examination and 78.7 per cent by cultural methods. The relative value of the two methods depends on the genus of fungus concerned. Both should be used in the diagnosis of fungous infections. The percentage of positive results varies with the different diseases. Tinea capitis, tinea circinata and erosio interdigitalis give a high percentage of positives, and dermatophytosis a fair percentage. Contact dermatitis has an extremely low percentage, an observation which proves that secondary infection with fungi is more or less infrequent. The incidence of tinea capitis, most prevalent in children, shows a seasonal variation, with a decline during the summer vacation months. The cases of dermatophytosis decrease during the cold months. The percentage of positive cases is highest in warm weather. The 179 fungi comprised seven genera, of which the three commonest were Microsporon (41.3 per cent), Monilia (21.8 per cent) and Trichophyton (18.5 per cent). The anatomic distribution of the lesions from which fungi were detected was as follows: head, 29 per cent; body, 19 per cent; upper extremities, 26 per cent, and lower extremities, 26 per cent.

Ohio State Medical Journal, Columbus

36: 121-240 (Feb.) 1940

- Errors in Roentgen Diagnosis: Part I. Pseudofracture. G. L. Sackett, Cleveland.—p. 137.
- Treatment of Pneumonia. J. M. Ruegsegger, Cincinnati.—p. 145.
- *Treatment of Juvenile Adiposogenital Dystrophy with Anterior Pituitary Growth Complex. A. Ruppertsberg Jr., Columbus.—p. 149.
- Diagnosis and Treatment of Nasal Polyp. E. R. Hargett, Springfield.—p. 151.
- Successful Case of Hypodermic Hyposensitization to Wheat. S. R. Zoss, Youngstown.—p. 154.
- Arachnoidactyly: Report of Case Complicating Pregnancy at Term. W. B. Bean and J. G. Fleming, Cincinnati.—p. 155.
- Tuberculosis of Chest Wall: Report of Unusual Case. B. B. Larsen and H. A. Williams, Cleveland.—p. 161.
- Severe Anemia Associated with Diaphragmatic Hernia. H. S. Schiro and J. E. Benjamin, Cincinnati.—p. 164.
- Errors in Diagnosis. H. S. Applebaum, Cleveland.—p. 167.
- Differential Diagnosis of Hyperthyroidism. J. L. De Courcy, Cincinnati.—p. 170.
- Cesarean Section: Study of 262 Cases from St. Ann's Maternity Hospital, Cleveland, Ohio. P. V. Duffy, Cleveland.—p. 173.
- Comparative Study of Serum and Sulfapyridine in Treatment of Lobar Pneumonia. U. G. Mason and J. B. Stocklen, Cleveland.—p. 177.

Anterior Pituitary Complex for Adiposogenital Dystrophy.—The successful treatment of a case of adiposogenital dystrophy in a girl of 6½ years with the anterior pituitary growth complex is reported by Ruppertsberg. The child before treatment was begun weighed 85 pounds (38 Kg.) and her height was 44 inches (112 cm.). She was placed on a diet consisting of a total of 940 calories a day. Thyroxine 0.4 mg. and anterior pituitary gland extract 12 grains (0.8 Gm.) were given daily by mouth. In addition she was given 1 cc. of growth complex intramuscularly three times a week. This treatment was rigidly executed for approximately six months, at which time the patient had apparently lost 23 pounds (10 Kg.) and there was a redistribution of the residual obesity. Her speech response was much improved and her disposition markedly more pleasant. Improvement in both mental and muscular activity was observed. Her height had increased a little more than 1½ inches in the six months of treatment. There was no change in the ovarian function of the patient, according to observation of the mammae and external genitalia. The case was one of marked hypopituitarism (juvenile type of Fröhlich's syndrome) associated with hypothyroidism and possibly a parathyroid imbalance. The author warns that after such a diagnosis has been established any medication which might stimulate sex maturity should be avoided. Therefore any preparation containing the gonadotropic factor of the anterior pituitary gland cannot be used, but the "growth complex" may be employed with safety, since it contains a negligible amount of the factor.

Pennsylvania Medical Journal, Harrisburg

43: 593-752 (Feb.) 1940

- Unilateral Exophthalmos and Its Surgical Treatment. A. B. Reese, New York.—p. 605.
- Use of Hydroxyethylapocuprine in Treatment of Pneumococcal Pneumonia. W. W. G. MacLachlan, Pittsburgh.—p. 612.
- Use of Sulfapyridine in Pneumonia. D. S. Pepper, Philadelphia.—p. 615.
- Hydronephrosis Secondary to Noncalculus Ureteropelvic Obstruction. W. I. Buchert, Danville.—p. 625.
- *New Procedure for Correction of Ureteropelvic Junction Obstruction. J. G. Moore, Pittsburgh.—p. 631.
- Use of Walking Caliper in Fractures of Leg. R. E. Brubaker, Danville.—p. 635.
- Prophylaxis of Ophthalmia Neonatorum with Silver Acetate. W. F. Hartman, Philadelphia.—p. 639.
- Thyrotic Reactions Following Major Operations. G. P. Muller and J. M. Surver, Philadelphia.—p. 642.
- The Ophthalmologist and the Workmen's Compensation Law. J. H. Delaney, Erie.—p. 645.
- State Aid and Purpose of the Campaign Against Syphilis. E. S. Everhart, Harrisburg.—p. 648.
- Management of Early Syphilis in Adults. G. J. Busman, Pittsburgh.—p. 651.
- Correction of Massive Defects of Both Eyelids. E. B. Spaeth, Philadelphia.—p. 663.
- Hormone Diagnosis of Intra-Uterine Fetal Death: Value of Quantitative Serum Prolan Determinations as Diagnostic Procedure. A. E. Rakoff, Philadelphia.—p. 669.
- Defective Hearing and Chronic Ear Disease as Revealed by Examination of 47,000 Philadelphia School Children. W. S. Cornell, Philadelphia.—p. 678.

Procedure for Correcting Ureteropelvic Obstruction.—Moore outlines a method for immediate nephrostomy with the continued use of the same tube as an internal support for the ureter. The method, he believes, should encourage prolonged

splinting of the ureter after any type of operation on the ureteropelvic junction, since the tube can be retained without disturbing the patient in any way. The procedure was used in five cases in which operation was performed for hydronephrosis. The time elapsed is not sufficient to permit an evaluation of the permanent results, but the feasibility of the method is indicated. The method is as follows: After the lumbar incision is made, the kidney is exposed over its entire surface. The ureteropelvic junction and ureter are examined, and the cause of obstruction is determined and relieved by the correction indicated in the individual case. A curved uterine sound is passed through the incision in the pelvis and then through the lower calix to the capsule which is incised. The tube is telescoped over the sound for a short distance and drawn into the pelvis. It is then passed down the ureter for about 3 or 4 inches, with two or three fenestrations in the portion which will come to lie in the pelvis. The tubing used is No. 12 or 14 French in caliber. The incision in the pelvis is entirely closed with fine chromic catgut. Nephropexy is always done by elevating a small area of the capsule around the tube and suturing it to the lumbar muscles. The lower pole is supported by a gauze drain. The tube is tied to the muscle with chromic catgut and to the skin with silk worm gut. The gauze and tube are taken out through separate openings in the incision. The tube is allowed to drain into a bottle until the patient is ready to get out of bed, between ten and fourteen days after operation, at which time a screw clamp is closed on the tube very close to the skin and all extra tubing is cut away.

Radiology, Syracuse, N. Y.

34: 131-260 (Feb.) 1940

- Epiphysal Dysplasia Puncticularis (Stippled Epiphyses): Report of Case Not Associated with Hypothyroidism. J. A. L. McCullough and C. G. Sutherland, Rochester, Minn.—p. 131.
- Present Conception of Treatment of Cancer of Larynx. H. Coutard, Chicago.—p. 136.
- Surgical Treatment of Cancer of Larynx. J. H. McCready, Pittsburgh.—p. 146.
- Variations in Radiation Technic and Biologic Effects in Treatment of Pharyngeal Cancer. H. E. Martin, New York.—p. 149.
- Roentgen Therapy in Acute Puerperal Mastitis. J. F. Elward and S. M. Dodek, Washington, D. C.—p. 166.
- Accidental Perivascular Injection of Thorotrast: Report of Two Cases. S. E. Ziffren, Iowa City.—p. 171.
- Castration of the Female by Irradiation: Results in 334 Patients. W. S. Peck, J. T. McGreer, N. R. Kretzschmar and W. E. Brown, Ann Arbor, Mich.—p. 176.
- Two Years' Experience with 400 Kilovolts Constant Potential Deep Therapy. D. Steel, Cleveland.—p. 187.
- Therapeutic and Economic Indications for Telerradium and Supervoltage X-Ray Machine. C. D. Lucas, Charlotte, N. C.—p. 193.
- Differential Action of X-Rays on Anterior and Posterior Regions of Tubifex Tubifex. H. Branson and H. Kersten, Cincinnati.—p. 200.
- *New Approach to Treatment of Certain Bladder Carcinomas. L. S. Goin and E. F. Hoffman, Los Angeles.—p. 205.
- Diagnosis of "Basilar Impression." A. Schuller, Vienna, Germany; revised for publication by L. G. Rigler, Minneapolis.—p. 214.
- Submucous Lipoma of Large Intestine: Case Report. W. J. Ravenel, Charleston, S. C.—p. 217.
- Principles of New Therapy with High Speed Electrons: Preliminary Report. R. Schindler, New York.—p. 222.

New Approach for Treating Bladder Carcinomas.

Because a large percentage of bladder tumors are either far advanced or extensively infiltrated when first seen, Goin and Hoffman believe that coagulation either does not destroy the tumor or causes such great destruction of the surrounding tissue that occlusion of one or both ureters, obstruction of the neck of the bladder or rectovesical or vesicovaginal fistula results. Total excision is likewise a formidable procedure, carrying a high mortality and being technically difficult, as it involves diversion of the urinary stream either to the colon or to the cutaneous surface. For this group of tumors the authors propose marsupialization of the bladder and intense irradiation of the tumor at its site by the contact therapy method. The preliminary operation consists of a midline cystotomy. No roentgen treatment is attempted until the ninth or tenth postoperative day, in order to avoid the placing of any mechanical stress on the newly marsupialized bladder. On the day treatment is begun, the bladder is irrigated with a 1:10,000 solution of potassium permanganate and the Freyer tube is removed from it. The lower part of the abdomen is cleansed and painted with tincture of mercuric iodine and draped. The x-ray tube is covered with a sterile stockinet so that only its distal end is exposed and a sterile rubber sheath is pulled

over the end of the tube and part of the stockinet. The patient is given evipal intravenously. The tube is inserted in the bladder, its end in contact with the tumor. The dosage has been as high as 2,556 roentgens per treatment with a roentgen afflux of 1,278 per minute; 1 mm. of aluminum added filtration was employed. Treatment is given on alternate days and the total dose has been as high as 30,672 roentgens given over a period of twenty-seven days. No alarming sequelae have been encountered and the radiation reaction consisted only of injection and increased redness. When treatment is concluded the bladder is closed and the patient discharged after the usual postoperative period. Evipal anesthesia need not be used if the patient tolerates mild pain well. Three cases are reported. The authors draw no definite clinical conclusions, as sufficient time has not elapsed to permit evaluation of the method. They believe that in selected cases a great deal more can be offered a patient with a bladder carcinoma from their combined method than either fulguration or cystectomy can offer.

Texas State Journal of Medicine, Fort Worth

35: 663-744 (Feb.) 1940

- What Are the Duties and Responsibilities of the General Practitioner in Treatment of Fractures? Unrecognized Fractures. H. R. Owen, Philadelphia.—p. 668.
Gumma of Brain. J. E. Williams, Galveston.—p. 672.
Psychology in Pediatrics. J. Zahorsky, St. Louis.—p. 676.
Psychiatric Contraindications to Surgery. G. F. Witt and T. H. Cheavens, Dallas.—p. 681.
Vaginal Agenesis. A. G. Cowles, San Antonio.—p. 685.
Indications for Treatment of Malpositions of Uterus. W. B. Lasater, Mineral Wells.—p. 689.
Roentgen Therapy of Infections. E. P. Pendergrass and P. J. Hodes, Philadelphia.—p. 693.
Etiology and Treatment of Glaucoma Preceding and Following Cataract Extraction. W. R. Buffington, New Orleans.—p. 700.
Recurrent Vitreous Hemorrhages in Young Adults—Eales Disease. J. F. Schultz, Houston.—p. 705.
The New Deal and the Doctor. W. B. Russ, San Antonio.—p. 708.
History of Administration of the Dallas Venereal Disease Clinic Since Its Reorganization in 1936. J. W. Bass, Dallas.—p. 712.

Virginia Medical Monthly, Richmond

67: 67-130 (Feb.) 1940

- The Cancer Problem. M. R. Reid, Cincinnati.—p. 67.
Care of Skin of the New Born: Preliminary Report. J. M. Whitfield and H. W. Farber, Richmond.—p. 75.
Use of Cow Horn Peg in Fractures of Neck of Femur, with Special Reference to Types of Fractures Suitable for Use of the Peg and Method Employed in Introducing Same. P. W. Boyd, Winchester.—p. 77.
Endocrinology Briefs. J. P. Lynch, Richmond.—p. 79.
Roentgen Therapy of Certain Infections and Inflammations. C. W. Eley, Norfolk.—p. 80.
Recent Perils to Practice of Medicine as Viewed by a Rural Practitioner. J. P. Kent, Altavista.—p. 87.
Pathologic Implications in Bacon's Rebellion. P. G. Hamlin, Cambridge, Md.—p. 91.
Use of Digitalis and Quinidine in Treatment of Heart Disease. W. C. Reed, Richmond.—p. 97.
Discussion of Renal Function Tests. J. F. Waddill, Norfolk.—p. 100.
*Nondiabetic Glycosuria: Report of Cases. S. C. Hall Jr., Danville.—p. 105.
Paresis and the Negro. L. Kolipinski, Petersburg.—p. 107.
Sulfapyridine in Treatment of Lobar Pneumonia: Report of Thirty-One Cases. C. F. James Jr., New York.—p. 109.
Schizophrenia Modified by Alcohol. L. I. Hallay, Fort Blackmore.—p. 111.
Agranulocytosis Following Use of Pyramidon and Neoprontosil: Case. J. H. Bailey and B. Katzen, Roanoke.—p. 112.
Occurrence of Multiple Cases of Infantile Paralysis in One Family. R. O. Jones, Burnsville, N. C.—p. 113.
Report of Stillbirth of Male Conjoined Twins, Gestation Eight and One Half Months, with Epigastric Attachment Extending from Third Rib to Umbilicus. H. C. Padgett, Roanoke.—p. 114.
Tularemia Treated by Sulfanilamide: Case. H. G. Hadley, Washington, D. C.—p. 115.

Nondiabetic Glycosuria.—Hall reports five cases of nondiabetic glycosuria. In spite of its prevalence the condition at times is not unrecognized, as the patients are subjected to a diabetic regimen. In some instances a long period of observation is necessary before the case can be put in a nondiabetic group. Some of these persons have been classified by Joslin as potentially diabetic. The diagnosis of diabetes mellitus may be made at least tentatively on a fasting venous blood sugar of 0.14 per cent or a value after a meal of 0.17 per cent. In nondiabetic cases the blood sugar should not exceed 0.17 per cent at its peak and should return approximately to the fasting level in two hours. Three of the patients whose histories the author presents received insulin with little if any effect for

varying lengths of time, one for nearly nine years. None of the five patients gave a clinical history suggesting diabetes mellitus. With the exception of two, they did not complain of any symptoms; one of these two complained of weakness, lassitude and some weight loss, and the other of amenorrhea. Physical examination was essentially normal in all. Only one patient had a positive family history of diabetes mellitus. The pathologic physiology involved in benign glycosuria is not known. There are no signs or symptoms of renal inadequacy except the glycosuria. The blood sugar may be somewhat on the low side of normal. The patient who received insulin for nine years excreted variable amounts of sugar when taking it but, after taking dextrose for a sugar tolerance test, excreted no sugar at all. The benign course of the condition is well illustrated by this patient, who a year after discontinuing insulin looks and feels well.

Wisconsin Medical Journal, Madison

39: 77-152 (Feb.) 1940

- Pulmonary Hypertension and Failure of Right Side of Heart. T. J. Dry, Rochester, Minn.—p. 89.
*Early Postoperative Feeding. P. H. Halperin, Madison.—p. 94.
Formation of Urinary Calculi Following Fracture: Case Report. C. A. Wood, Waukesha.—p. 97.
Bromism. O. C. Clark, Oconomowoc.—p. 100.
Improved Technic in Use of Kielland Forceps. J. B. Vedder, Marshfield.—p. 103.
Treatment of Atrophic Arthritis. A. C. Hansen, Milwaukee.—p. 106.

Early Postoperative Feeding.—Halperin employed early postoperative feeding in sixty-five unselected cases excluding, however, cases in which operations had been performed on the stomach or the biliary tract. The types of diets given were carbohydrate (cooked cereals, jello, custards, hard candy, toast and synthetic fruit juices), protein (gelatin, beef stock, soups, soft boiled eggs and lean meats), carbohydrate and protein and control diets (liquids for forty-eight hours and then a soft diet). Approximately 25 per cent of the twenty-three patients given the protein diet vomited almost immediately after its ingestion. This, the author believes, was psychic and due to the fact that the diet was not palatable. Most of the patients had to be forced to eat and many complained bitterly that they had no desire to eat such food. The average time postoperatively at which this diet was given was 10.8 hours. About half of these patients had mild gas pains before eating, and approximately 44 per cent experienced some form of transitory gas pain after eating. Flatus by rectum was observed twenty-seven hours postoperatively. Five of the group had spontaneous bowel movements, eliminating the necessity of routine enemas. Eleven patients were given a carbohydrate diet about nine hours postoperatively. Two had mild gas pains before eating and four had slight gas pains after eating. No patient in this group had distention. Routine enemas were given forty-eight hours postoperatively. One of these patients vomited after eating. The average postoperative time at which twenty patients were given the combined protein and carbohydrate diet was twelve hours. Nine of this group experienced gas pains prior to eating. Four had gas pains after taking the diet. None of the patients had distention. Flatus was noticed on an average of twenty-five hours postoperatively. Two had spontaneous bowel movements. Enemas were administered at approximately forty-eight hours postoperatively. The eleven patients given the control diet experienced, at some time or other during the forty-eight hours, gas pains varying in intensity. At the end of forty-eight hours they were placed on the usual soft diet. The average patient in this group began to pass flatus at the end of forty-five hours. There were no cases of distention. The author's conclusion is that early postoperative feeding is practical and obviously efficacious in combating postoperative gas pains and distention. Gas pains occur less often and peristalsis is reestablished earlier, as evidenced by the fact that patients begin to pass flatus sooner. The type of diet administered is important. It should be of semisolid consistency and should not contain foods that might produce reflex nausea. Fats should be excluded in the early postoperative diet, since they tend to slow up peristalsis and inhibit to some degree the digestion of carbohydrates. With the exception of orange juice and milk, carbohydrate foods such as toast, cooked cereals, gruels, hard boiled eggs, gelatins, custards and mashed potatoes make up an ideal postoperative diet.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Heart Journal, London

2:1-62 (Jan.) 1940

- *Electrocardiographic Findings in Anemia. P. Szekely.—p. 1.
U, the Sixth Wave of the Electrocardiogram. C. Papp.—p. 9.
Psychologic Treatment of Cases with Cardiac Pain. G. Bourne and E. Wittkower.—p. 25.
Analysis of Fifty Normal Electrocardiograms Including Lead IV. J. Hoskin and P. Jonescu.—p. 33.
Electrical Axis Deviation of Fifty Normal Electrocardiograms. J. Hoskin and P. Jonescu.—p. 47.
Relative Value of Certain Digitalis Preparations in Heart Failure with Auricular Fibrillation. W. Evans.—p. 51.

Electrocardiographic Changes in Anemia.—Szekely found with the aid of electrocardiograms abnormalities in twenty-three of seventy-six cases of anemia with no clinical evidence of cardiovascular disease. Most frequently flattening of the T wave occurred, less frequently depression of the ST segment and low T wave in leads 2 and 3 occurred after a profuse hematemeses. These electrocardiographic changes disappeared shortly after the anemia was improved slightly. Experimental observations can be applied only with reserve in the clinical field. Nevertheless a correlation between anemia and cardiac disturbances resulting from anoxemia of the heart muscle suggests itself, especially the occasional disappearance of both clinical and electrocardiographic abnormalities after improvement of the anemia. In the author's cases there was no close parallelism between the degree of anemia and the cardiac disturbances. It seems probable that, both in acute and in chronic anemia, angina pectoris or electrocardiographic changes are not due merely to the anemia causing anoxemia of the heart muscle but also to some other factor. In acute posthemorrhagic anemia this additional factor seems to be of reflex vasomotor character. In such instances the coronary volume flow may not be adapted to the acutely altered circulation, and acute coronary insufficiency may result with clinical or electrocardiographic manifestations. The use of hypochromic hemorrhagic anemia could be explained in his way. In chronic anemia the primary myocardial anoxemia, the direct result of the diminution of the oxygen-carrying power of the blood, may have a more decisive role. Toxic factors must also be taken into consideration, as they may affect the myocardium directly. Such might have been the case in the anemic cases with low voltage in which the electrocardiographic abnormalities were irreversible in spite of temporary improvement of the anemia.

British Journal of Dermatology and Syphilis, London

52:43-72 (Feb.) 1940

- Dermatology and Folklore. J. D. Rolleston.—p. 43.
Median Mental Sinus. G. Duckworth.—p. 57.
Scharberg's Disease. W. J. O'Donovan.—p. 60.

British Journal of Ophthalmology, London

24:1-52 (Jan.) 1940

- Response of Eye to Light in Relation to Measurement of Subjective Brightness and Contrast. W. D. Wright.—p. 1.
Mechanism of Dark Adaptation: Critical Résumé. R. J. Lythgoe.—p. 21.
Spherocylindric Contact Lenses: Preliminary Note. F. A. Willimason. Noble, J. Dallos and Ida Mann.—p. 43.

24:53-104 (Feb.) 1940

- Improvised Eye Irrigator for Use in the Field. H. B. Stallard.—p. 53.
Origin of Abnormal Retinal Correspondence. T. A. B. Travers.—p. 58.
Buphthalmos with Facial Nevus and Allied Conditions. A. J. Ballantyne.—p. 65.
Study of Effects of Liquid Mustard Gas on Eyes of Rabbits and of Certain Methods of Treatment. P. C. Livingston and H. M. Walker.—p. 67.

British Journal of Radiology, London

13:1-36 (Jan.) 1940

- New Technic of Treatment of Carcinoma of Cervix Uteri by Combining X-Rays and Radium. J. Z. Walker.—p. 1.
Physical Investigation of Contribution of Photo-Electrons from Sulfur to X-Ray Ionization. L. H. Gray.—p. 25.
Relative Response of Skin of Mice to X-Radiation and Gamma Radiation. J. C. Mottram and L. H. Gray.—p. 31.
Nonrotation of Colon. H. G. Hadley.—p. 35.

13:37-72 (Feb.) 1940

- Recent Advances in Roentgen Diagnosis of Gastric Cancer. R. Ledoux-Lebard.—p. 37.
Intussusception: Radiologic Study. E. R. Williams.—p. 51.

British Medical Journal, London

1:201-242 (Feb. 10) 1940

- Interaction in Vitro of Fibroblasts and Sarcoma Cells with Leukocytes and Macrophages. R. J. Ludford.—p. 201.
Effect of Estradiol Benzoate on Amount of Gonadotropin Found in Pituitary Gland and Urine of Postmenopausal Women. I. W. Rowlands and E. P. Sharpey-Schafer.—p. 205.
Convergence Deficiency: Condition, Its Occurrence in Private Practice and Results of Treatment. Ida Mann.—p. 208.
Results of Ambulant Treatment of Peptic Ulcers. D. Ferriman.—p. 210.
*Agranulocytosis Following Sulfapyridine Therapy. B. Pringle, G. C. Dockray and R. H. Mitchell.—p. 212.

Granulocytopenia Following Sulfapyridine Therapy.—Pringle and his co-workers report a case of granulocytopenia occurring during sulfapyridine therapy for pneumonia. No other drug known to cause granulocytopenia was administered to this patient. The recovery of the patient was rapid and uninterrupted following transfusion, despite the fact that the diagnosis was not made until there were no granular cells in the blood. "Angina," with the exception of slight ulcerative changes in the mouth, was absent. The only symptom was persistent severe pain in the legs. Evidence of any other toxic reaction to the drug was absent. The authors review similar previously reported cases.

Edinburgh Medical Journal

47:81-152 (Feb.) 1940

- Nicotinic Acid Treatment of Pellagra: Report of Case Occurring in Edinburgh. D. S. Robertson.—p. 81.
Tuberculous Pyopneumothorax, with Special Reference to Certain Points in Its Management. R. Y. Keers.—p. 86.
Occupational Therapy. J. Cunningham.—p. 96.
The Problem of the Virulence of Tubercle Bacillus. W. T. Munro.—p. 110.
Dynamics of Crowd Infection. A. G. McKendrick.—p. 117.

Journal of Endocrinology, London

1:231-366 (Nov.) 1939

- Observations Related to Swelling of Sexual Skin in Rhesus Monkeys. A. G. Ogston, J. St. L. Philpot and S. Zuckerman.—p. 231.
Species Variation in Thyrotropic, Gonadotropic and Prolactin Activities of Anterior Hypophyseal Tissue. M. R. A. Chance, I. W. Rowlands and F. G. Young.—p. 239.
Effects of Estrogen and Androgen Injections on Reproductive Organs in Male Rats and Mice. R. Harsh, M. D. Overholser and L. J. Wells.—p. 261.
Inadequacy of Vaginal Smear in Rat as Index of Ovarian Dysfunction Caused by Diet. S. C. Freed, O. Hechter and S. Soskin.—p. 268.
Studies on Relationship of Vitamin E (Tocopherols) to Endocrine System. J. C. Drummond, R. L. Noble and Margaret D. Wright.—p. 275.
Effect of Subcutaneous Implantation of Adrenalin Tablets on Blood Sugar and Milk Composition in Lactating Ruminants. A. C. Bottomley, S. J. Folley, F. H. A. Walker and H. M. S. Watson.—p. 287.
Uterus Masculinus of Rabbit and Its Reactions to Androgens and Estrogens. Ruth Deanesly.—p. 300.
Modification of Effectiveness of Gonadotropic Extracts. Ruth Deanesly.—p. 307.
*Effect of Route of Administration on Multiple Activities of Testosterone and Methyl Testosterone in Different Species. C. W. Emmens and A. S. Parkes.—p. 323.
Some Biologic Properties of Anhydro-Hydroxy-Progestosterone (Ethynyl Testosterone). C. W. Emmens and A. S. Parkes.—p. 332.
Anterior Pituitary Fractions and Carbohydrate Metabolism: I. Preparation and Properties of Diabetogenic Extracts. F. G. Young.—p. 339.
Urinary Gonadotropic Extracts and Anaphylaxis in Vitro. M. van den Ende.—p. 356.

Activity of Androgens and Route of Administration.—Emmens and Parkes studied the effectiveness of testosterone and methyl testosterone in capons, rats and rabbits when administered by injection, orally and parenterally. Testosterone is much less active by mouth than by injection in tests for androgenic activity in the capon and castrated male rat, in metrotropic tests on spayed rats or immature rabbits, and in tests for progestational activity in rabbits. Methyl testosterone, however, is almost as active by mouth as by injection in causing progestational proliferation in rabbits, and it has a relatively greater activity by mouth in the other tests than has testosterone. When given orally instead of by injection to rats, its androgenic activity decreases much less than its power of causing an increase in uterine weight. Methyl testosterone is more potent than testosterone as an androgen in rats, but less potent than testosterone as an androgen in capons, and more potent than testosterone in the progestational tests by either route of administration. The two substances are about equally active in causing uterine growth in spayed rats and immature rabbits.

Journal of Neurology and Psychiatry, London

3:1-100 (Jan.) 1940

- *Emotional and Somatic Response of Schizophrenic Patients and Normal Controls to Adrenalin and Doryl. J. B. Dynes and H. Tod.—p. 1.
Distribution of Commissural Fibers in Corpus Callosum in Macaque Monkey. S. Sunderland.—p. 9.
Behavior and Mood Cycles Apparently Related to Parathyroid Deficiency. C. P. Richter, W. M. Honeyman and H. Hunter.—p. 19.
Hypoglycemic Shock and Grasp Reflex: Effect of Insulin Shock on Bulbocapnine Catalepsy in Monkeys. A. Kennedy.—p. 27.
Degeneration of Papillomacular Bundle in Apes and Its Significance in Human Neuropathology. H. J. Scherer.—p. 37.

Response of Schizophrenic Patients to Drugs.—Dynes and Tod compared the emotional and somatic reactions of ten schizophrenic patients and six normal control subjects after intramuscular injection of epinephrine and carbaminoylcholine chloride. There was no significant difference in the somatic responses of the two groups of subjects, although the schizophrenic group exhibited more variability of response to both epinephrine and carbaminoylcholine chloride, tending to bear out the observations of others to the effect that the adaptive mechanisms of the schizophrenic patient to preserve the "steady state" are defective under conditions of stress. Carbaminoylcholine chloride injected intramuscularly produced an excellent peripheral autonomic response in both the schizophrenic and the normal subjects, but no emotional disturbance (anxiety or fear) in either. The clearcut and definite failure of epinephrine to arouse the anxiety or fear response in the schizophrenic patient as compared with the normal control subject is significant and points to a disordered emotional mechanism at a physiologic level. Experimental data are presented which only indirectly localize this break in the chain of physiologic response. The results suggest possibilities for investigation in an effort to understand better the central emotional mechanism.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

46:941-1080 (Dec.) 1939

- Antepartum Hemorrhage. N. Pasha Mahfouz and I. Magdi.—p. 941.
*Ovarian Dysmenorrhea: Its Etiology, Diagnosis and Treatment. O. Browne.—p. 962.
Estrogens and Carcinoma of Uterus. A. A. Gemmell and T. N. A. Jeffcoate.—p. 985.
Adenocarcinoma of Uterus Subsequent to Simple Intra-Uterine Polypsis. R. E. Hirsion.—p. 994.
Value of Cephalometry in Estimation of Fetal Weight, Based on Measurements of 1,010 Infants. J. G. H. Ince.—p. 1003.
Labor Obstructed by Dermoid Cyst of Rectovaginal Septum. G. Maizels.—p. 1011.
Bilateral Cystine Renal Calculi and Pregnancy. J. Young and J. Carver.—p. 1015.
Unusual Case of Adenocarcinoma of Body of Uterus. A. E. Chisholm and R. L. Ferguson.—p. 1019.
The Simpson Memorial Maternity Pavilion, Royal Infirmary, Edinburgh. R. W. Johnston.—p. 1020.

Ovarian Dysmenorrhea.—Ovarian dysmenorrhea, according to Browne, is a definite clinical entity with characteristic symptoms and signs which allow of an accurate diagnosis. It is present alone in about 11.9 per cent of all cases of dysmenorrhea but may be associated with dysmenorrhea of uterine origin, thus constituting "mixed" dysmenorrhea. True ovarian dysmenorrhea can be completely cured by bilateral ovarian denervation. The author did not observe any ill effects following this operation. In the severe and intractable dysmenorrhea of uterine and ovarian origin both bilateral ovarian denervation and presacral sympathectomy are probably indicated. In an effort to separate clinically uterine from ovarian dysmenorrhea the author devised a sound test. The passing of a sterile uterine sound, heretofore regarded as a difficult procedure in such cases owing to the likelihood of the internal os being tight, proved to be simple and was not followed by any known immediate or remote ill effects. Pregnancy, cervical infection or other contraindications should be excluded before the sound is passed. In several cases a small intra-uterine bag inflated to 5 cc. capacity was used, with full aseptic precautions, to test for uterine pain. In others, when the fallopian tubes of the patient were blocked, Rubin's apparatus was used up to 300 mm. of mercury pressure. From these methods the author concluded that typical uterine pain is accurately referred to the midline of the lower part of the abdomen in the immediate suprapubic area, although it may sometimes reach as high as the umbilicus. This was true in 49 per cent of the patients examined. In 11 per cent of somewhat exceptional instances of uterine dysmenorrhea the passing of a uterine sound produced atypical

referred pain in some other part of the lower abdominal area. In most of these there was some palpable pelvic abnormality. The passing of the sound was painless in approximately 36 per cent of the patients, many of whom were not suffering from dysmenorrhea; it produced pain referred exactly to the umbilicus in 2 per cent, and to the midline of the vulva about the position of the clitoris in the other 2 per cent. Pathways for painful ovarian stimuli exist in the ovarian nerves. The neurogenic etiologic theory of ovarian dysmenorrhea is accepted by the author as the most likely and his microscopic material confirms the observations already published on this matter. Sclerocystic ovarian changes are constant in severe ovarian dysmenorrhea and are probably secondary to preexisting ovarian nerve lesions. Cervical dilation, with or without uterine curettage, relieves only those cases of uterine dysmenorrhea in which there is no serious premenstrual discomfort or pain. It is pointed out that Cotte's 60 per cent cure rate of uterine dysmenorrhea by presacral sympathectomy, when considered along with the author's 11 per cent rate in cases of isolated ovarian dysmenorrhea following bilateral ovarian denervation, suggests that the remaining 25 to 30 per cent of cases of severe dysmenorrhea are of the "mixed" type or, possibly, of endocrine origin.

Lancet, London

1:253-302 (Feb. 10) 1940

- Rickettsia Diseases of Malaya: Identity of Tsutsugamushi and Rural Typhus. R. Lewthwaite and S. R. Savoor.—p. 255.
Recurrent Traumatic Herpes. G. M. Findlay and F. O. MacCallum.—p. 259.
Dosage of Sulfanilamide Derivatives for Children. M. Hynes.—p. 261.
*Tuberculosis in Medical Students: Diagnostic Service at University College Hospital Medical School. P. D. Hart, Gwen Hilton and A. Morland.—p. 263.
Hemiplegia Complicating Sodium Diphenyl Hydantoinate Therapy of Epilepsy. D. Blair.—p. 269.

Tuberculosis in Medical Students.—Hart and his associates state that about a third of the total deaths from disease among young adults are due to pulmonary tuberculosis and that this age group shared least in the general decline in mortality from tuberculosis in the present century. The committee of University College Hospital medical school introduced a scheme for a periodic medical examination of students occupied in clinical training or in junior qualified appointments at the hospital in order to reduce the morbidity from pulmonary tuberculosis by early detection. The system has now been in operation for more than three years. The program consists of periodic radiography combined with history taking and laterally with Mantoux testing. The average population at risk has been about 250, with a gradually changing makeup. Between February 1936 and June 1939 the number showing lesions of some importance amounted to twenty-six of a total of 417 students examined, an incidence of 6.2 per cent. In seventeen of the twenty-six the lesions were believed to have had their onset during the clinical course and in the remaining nine to have originated previously. Pulmonary fluffy shadows were observed in thirteen, pulmonary "coin" shadows, considered to represent early primary foci, in four, pleurisy in five, gross healed pulmonary lesions in two and extrapulmonary tuberculosis in two. Eight were advised sanatorium or hospital treatment, four were advised restricted life without cessation of work and fourteen were recommended to pursue normal lives under closer observation. Of the eight sanatorium cases, five presented fluffy pulmonary shadows, one had a pleurisy with effusion and two were cases of extrapulmonary tuberculosis. All but one of the eight exhibiting fluffy pulmonary shadows accepted the advice. Of the five students with fluffy pulmonary shadows advised sanatorium treatment, two exhibited cavitation (one with positive sputum), one had a fibrocaseous lesion with positive sputum, one had had a spontaneous pneumothorax previously and one showed a persistently raised sedimentation rate. In all these cases, however, the symptoms referable to the chest at a time when the fluffy shadows were first discovered were minimal, and in four the lesion was recognized in the course of a systematic routine examination, only one because of subjective complaints. The type, localization and course of the fluffy shadows varied. The progress of the students with such shadows on sanatorium treatment (four of the five so advised) has been satisfactory. The lesions were of a limited extent, and those with cavitation reacted well to pneumothorax therapy.

All these students returned to work and have since qualified. The progress of the students advised restricted or normal life without cessation of work has so far been satisfactory. The response to the present voluntary program among the students eligible for enrolment has been more than 98 per cent, and the results have fully justified the expense and the effort involved.

Medical Journal of Australia, Sydney

1: 107-142 (Jan. 27) 1940

Medical Men and Books. K. Inglis.—p. 107.

Use of Sulfanilamides in Bacterial Infections. G. A. Penington.—p. 113.

*Concentration of Sulfanilamide in Saliva Following Oral Administration. S. Williams, Beryl Splatt and Rachel Jakobowicz.—p. 120.

Sulfanilamide in Saliva.—In spite of the value of sulfanilamide in most infections caused by hemolytic streptococci in man, it appears to be valueless in the treatment of scarlet fever in the early stage of toxemia. If the drug when administered by mouth is capable of inhibiting multiplication of hemolytic streptococci in the throat it should have a decisive prophylactic effect in scarlet fever. Williams and his associates cite studies which show that the problem of sulfanilamide excretion in the saliva of man is not simple. Excretion occurs only in the saliva at levels of blood sulfanilamide which vary greatly from subject to subject. Thus though a dose of 6 Gm. (70 or more mg. per kilogram of body weight) of sulfanilamide with large amounts of water given by a Rehfuess tube appears to ensure excretion of a reasonable amount of sulfanilamide in the saliva, a dose of 4 Gm. (50 mg. per kilogram of body weight) was not adequate to cause such a secretion. It is unlikely therefore that the saliva contained sulfanilamide in concentrations sufficient to be effective. Sulfanilamide causes neither stimulation nor inhibition of the salivary glands as judged by the volume of saliva excreted and the concentration of urea in it.

Tubercle, London

21: 81-120 (Dec.) 1939

*Thoracoscopy and Adhesion Section, with Special Reference to Indications and Results. J. Smart.—p. 81.
Tuberculosis in Burma. S. L. Cummins.—p. 97.

Thoracoscopy and Adhesion Section.—Smart believes that thoracoscopy and section of adhesions, by converting an imperfect artificial pneumothorax into a complete one, is a measure that has an important place in the complementary treatment of pulmonary tuberculosis. Of fifty-two consecutive thorascopies followed up for two years, the adhesions were divided in ten cases to produce a more perfect artificial pneumothorax; in twenty-seven the adhesions were divided because the artificial pneumothorax was unsatisfactory. Five patients were extremely ill and the adhesions were divided as a last resort. It was impossible to free the lung in one session in eight of ten patients, and two thorascopies were performed on each of them. In two patients a bilateral artificial pneumothorax was present at the time of the operation; in one there was no undue dyspnea but in the other the dyspnea was such that it was impossible to do more than look at the adhesion and withdraw the instrument at once. The mechanical results in the first ten cases were free artificial pneumothorax in seven and improved collapse in three. At present eight of these patients are in good health with no tubercle bacilli present and the health of two is improved. Of the twenty-seven patients, fourteen obtained a free artificial pneumothorax, eleven an improved collapse and the collapse of two remained the same. Seventeen of these twenty-seven patients are in good health with no tubercle bacilli, four are in fair health, three are in relapse or the condition has extended to the other side and three are dead. Of the five patients of the last group, four obtained an improved collapse and in one the collapse remained the same; two are in good health, one in fair health and two are dead. Empyema occurred in six instances of the fifty-two operations. The author believes that thoracoscopy is indicated for all patients who have adhesions and should not be confined only to those in whom an artificial pneumothorax is unsatisfactory. At the same time, when the artificial pneumothorax is satisfactory the adhesion should be cut only if the operator is certain that there is no risk of damage to the lung or the great vessels. The final results of artificial pneumothorax treatment have been considerably improved as a result of thoracoscopy.

Chinese Medical Journal, Peiping

56: 403-500 (Nov.) 1939

*Anemia from Blood Donation: Hematologic and Clinical Study of 101 Professional Donors. I. Snapper, S. H. Liu, H. L. Chung and T. F. Yu.—p. 403.

Hepatitis Following Sulfanilamide Therapy: Case Report. W. N. Bien and C. L. Tung.—p. 424.

Syphilis of Lung: Report of Three Cases Observed in North China. C. K. Hu, C. N. Frazier and C. K. Hsieh.—p. 431.

*Isolation of Treponema Pallidum from Blood During Primary Incubation Period of Human Syphilis. C. N. Frazier and H. C. Pian.—p. 441.

Dentigerous (Follicular) Cyst: Study of Fifty-Four Cases. A. F. Baranoff, C. S. Chang and H. T. Kimm.—p. 446.

Studies on Types of Corynebacterium Diphtheriae in Shanghai. H. Yü and Y. F. Hu.—p. 456.

Further Investigations on Schistosomiasis Japonica in Futsing, Fukien Province. C. C. Tang.—p. 462.

Trachoma in Chengtu, Szechwen: Review of 468 Cases. W. S. Mao.—p. 474.

Anemia of Blood Donors.—The studies of Snapper and his associates refute the general impression that recurrent donations of blood produce no harmful effects on the donors. Of 101 professional blood donors who had donated from 0.85 to 25 liters of blood in the course of from two months to ten years, seventy-six donors were found with a hemoglobin below 12 Gm., forty-four below 10 Gm., sixteen below 8 Gm. and three below 6 Gm. It was found that the frequency and the extent of the anemia increased with the total amount of blood withdrawn or the duration of service. Poor diet was considered to be a most important factor in the sluggish hemopoietic activity. Twenty of the ninety-three donors examined at the outpatient medical clinic were undernourished, twenty-nine had extreme pallor, glossitis was observed in twenty-five, systolic murmurs at the apex were heard in thirty-three, a palpable or an enlarged spleen was evident in twenty and the liver was either palpable or enlarged in eight. Six of the anemia donors were studied while resident in the hospital. The anemia proved to be of the microcytic hypochromic type, which is usually seen in cases in which there is chronic loss of blood. Glossitis, splenomegaly and achlorhydria were present in most of these cases. Treatment with large doses of iron resulted in prompt improvement, while cessation of blood donation was uncertain and less effective in bringing about a remission. Leukopenia, lymphocytosis and eosinophilia were common and often very marked. These usually disappeared on discontinuance of blood donation whether additional iron therapy was or was not given.

Spirochaeta Pallida in Blood During Primary Syphilis.—Frazier and Pian report the isolation of *Spirochaeta pallida* in the blood during the primary stage of syphilis. The case is that of a Chinese blood donor who had received frequent physical and serologic examinations during the course of his service. In September and November 1938 no evidence of syphilis was found on physical examination and serologic tests gave negative results. Between Nov. 7 and Dec. 15, 1938, he had four venereal exposures with three women. On Dec. 22, 1938, he gave 150 cc. of his blood for transfusion. At that time there was no penile sore or other syphilitic lesion and the Kline reaction was negative. On Jan. 6, 1939, he was again examined and found to be normal. The Kline reaction was again negative. On January 11 an ulcer of the prepuce was first noticed. This was twenty days after the transfusion. On January 26 he reported to the syphilis clinic with a typical chancre of the prepuce. Darkfield examination showed the presence of many spirochetes. The blood serum Wassermann reaction was anticomplementary but the Kahn and Kline reactions were positive. The recipient, a Chinese boy 8 years of age, had no evidence of syphilis, either acquired or congenital, before the transfusion of blood on Dec. 22, 1938. On Jan. 28, 1939, thirty-seven days after transfusion, he first noticed pain in both legs and a tender swelling on each anterior tibial surface. This was followed by pain and swelling of both forearms, fever and general malaise. On March 2 the recipient had a generalized macular eruption and a fulminating type of osteomyelitis and periostitis of both frontal and parietal bones, and of all the long bones except the femurs. The blood Wassermann reaction was strongly positive. On March 10, seventy-eight days after the transfusion, 1 cc. of his blood was inoculated into each testis of two normal rabbits. An acute orchitis developed in one of these animals seventy days after inoculation, and *Spirochaeta pallida* was identified in the aspirated testicular fluid by darkfield examination. The other animal showed no clinical or serologic evidence of infection during a period of twelve weeks.

Archives Méd.-Chir. de l'App. Respiratoire, Paris

14: 1-80 (No. 1) 1939

- Study of Pulmonary Lobules and of Their Air-Conducting Canals. V. E. de Pablo.—p. 1.
- Roentgenkymography in Study of Respiratory Kinematics. A. Rodrigues and R. Carvalho.—p. 24.
- *Thoracoplasties and Mediastinal Flutter: Study on Mobility of Mediastinum. A. Bernou, H. Fruchaud and L. Marecaux.—p. 34.
- Section of Adhesions: Pneumococcal Purulent Pleurisy Treated by Sulfanilamides; Pulmonary Miliary Tuberculosis with Bacillemia. D. Douady, J. Brailon and Geneviève Georges.—p. 46.
- *Pulmonary Forms of Besnier-Boeck-Schaumann's Disease. G. Thoyer.—p. 55.

Thoracoplasties and Mediastinal Flutter.—According to Bernou and his collaborators, mediastinal flutter began to receive attention with the introduction of paravertebral costal resections to include nearly all of a hemithorax. Accurate descriptions of this complication were first given by Sauerbruch and by César Roux. It may develop in the course of, or immediately after, a total thoracoplasty, when with each inspiration the healthy lung draws the mediastinum toward itself, the latter being no longer held back by the elasticity of the opposite lung. Thus the inspiratory effort becomes ineffectual. Rehn demonstrated the important role of the anterior mediastinum (retrosternal mediastinal space) in maintaining the equilibrium of the cardiovascular and respiratory functions. The authors discuss the roentgenologic technic of Rehn in investigation of the mobility of the anterior mediastinum and his method of fixation of the mediastinum. It is possible occasionally to observe on the screen considerable movements of the mediastinum in pneumothorax. The authors feel that an anterolateral thoracoplasty should never be attempted in the presence of a mobile mediastinum, which during examination in the lateral decubitus shows a deviation of more than 2 cm. (especially if the deviation attains from 4 to 6 cm.). It is less dangerous in such cases to perform a paravertebral or a subscapular thoracoplasty. In the presence of a flexible mediastinum, a superior paravertebral thoracoplasty as a primary intervention does not prevent mediastinal flutter in the later operations. The patient thus will be all the more exposed, because the wall will at a given moment remain flexible on a more extensive surface, notably in front, and it is evident that the mobility of the mediastinum will be more pronounced than before the operation. To avoid this complication they recommend that (1) the number and extension of costal resections in the first stage of the operation be reduced (it is better to expose the patient to a supplementary intervention than to mediastinal flutter) and (2) that operations be spaced so that some resistance of the wall has time to develop. Extraperiosteal costal resections and the application of formaldehyde to the periosteal beds should be avoided in these cases, because they risk leaving the walls flexible for too long a period. In the method employed by the authors the first rib is not resected until the second operation. This is postponed for three or even four weeks so as to obtain a certain resistance of the wall.

Pulmonary Forms of Besnier-Boeck-Schaumann's Disease.—The first case of cutaneous infiltration, according to Thoyer, was described by Besnier in 1889 under the term lupus pernio. Ten years later Boeck saw the nodular form of the same infiltration and designated the lesion as a sarcoid, and somewhat later, recognizing their lupiform course, he designated them as lupoids. Heerfordt in 1909 described a syndrome which comprised ocular lesions, swelling of the parotids and bilateral facial paralysis. No relationship was suspected between this uveoparotiditis and the cutaneous lesions until Pautrier recognized their common origin. At present, the Besnier-Boeck disease is recognized as a general disorder capable of multiple localizations, the cutaneous and ocular forms of which are the most striking. The concept of a systemic character is based on the clinical and histologic studies of Schaumann, who in 1914 proved the identity of the diffuse infiltrations of Besnier and the sarcoid of Boeck, finding at the same time identical tubercloid infiltrations in the lymph nodes, the tonsils, the bones and the lungs. Thoyer devotes particular attention to the pulmonary form, which may be readily mistaken for fibrous tuberculosis. Some investigators insist that the pulmonary form of Besnier-Boeck-Schaumann's disease is especially frequent. The process is nearly always torpid. It does not give rise to notable

functional or auscultatory signs and is usually discovered by x-ray examination. Three types of roentgenograms are recognized: 1. The most frequent and the most characteristic consists of a micronodular infiltration, the nodules resembling those of miliary tuberculosis. 2. The infiltration takes on the form of strands, or is marmoreal, resembling that of fibrous tuberculosis. 3. Cloudiness of the perihilar region suggests a selective lymphatic involvement which may be mistaken for mediastinal adenopathy of Hodgkin's disease. There may be a combination of lesions and a diversity of forms. Recently several authors have emphasized the existence of a type in which the pulmonary lesions predominate and are often associated with a superficial lymphatic involvement, a lymphopulmonary form of the disease. From the pathologic point of view, Besnier-Boeck-Schaumann's disease differs from tuberculosis by the absence of caseous degeneration. It is assumed that a specific, as yet unidentified, virus is the cause of the disease.

Journal de Chirurgie, Paris

55: 97-192 (Feb.) 1940

- Fractures of Tibial Plateau. M. van der Ghinst.—p. 97.
- *Extensive Intervention in Cancer of Thyroid. M. Dargent and M. Bérard.—p. 131.

Intervention in Cancer of Thyroid.—Dargent and Bérard studied 100 cases of cancer of the thyroid at the Cancer Hospital in Lyons. Two main types of thyroid cancer are differentiated. The anatomic characteristics of one resemble those of the fetal or the adult thyroid. These are trabecular, vesicular and trabeculovesicular cancers, papillary cancer and other rare forms. In the second, the morphologic appearances differ from those of the thyroid. These are the Herrenschmidt cancer, sarcoma, reticulosarcoma, plasmocytoma and fibroma. In addition to these two types there exist numerous atypical epitheliomas. All the cancers of the first type are of a limited malignancy, while those of the second type are extremely grave. In atypical epitheliomas the survival generally does not exceed three years. The trabeculovesicular cancers, the most common type of the first group, can be extensively removed even when accompanied by metastases, and a survival of more than ten years may be obtained. The metastases may give the impression of original tumors as in benign, so-called metastatic goiter. Surgical records and the examination of the specimens revealed the presence of invaded lymph nodes along the carotid chain and the veins of the neck and early neoplastic proliferations in the lumen of the thyroid vein, a short time after the intracapsular degeneration of the thyroid adenoma preexisting nearly always in these forms. With regard to roentgenologic sterilization of the operative field as opposed to the extensive operation, it may be said that, while it is effective in the treatment of metastases, its effect on the cancerous islands left behind is illusory. The authors review types of extensive interventions proposed by L. Bérard and Dunet, Joll and the Criles. They describe an extensive intervention in which extirpation *en bloc* of the sternocleidomastoid, the superficial aponeurosis, the omohyoid, the subhyoids, the median aponeurosis, the internal jugular vein, the superior thyroid and the entire tumor is done after the dissection of the recurrent nerve and the ligation of the arterial pedicles as far as possible. This operation must be considered as a systematic removal of cancer of the thyroid at the onset or in the course of its development. It is not applicable in extensive or relapsing cancers. It must be performed even when there are no signs of invasion of the lymph nodes. It is indicated in two types of cases: (1) the classic cases of unusual increase in volume of a benign tumor of the thyroid, (2) cases in which biopsy discloses early malignancy after a subtotal resection of a goiter. The contraindications are (1) impairment of the general state with extreme cachexia and considerable dissemination of metastases, (2) adherence to the trachea and the esophagus, confirmed by endoscopy, (3) previous knowledge of the character of the tumor. In case of tumors of the connective tissue these extensive operations are not justified. It is not necessarily contraindicated in the presence of paralysis of the recurrent nerve, for the latter does not always indicate invasion of the larynx, or in the presence of osseous metastases which are sensitive to roentgen therapy. The roentgen therapy of the skeleton must be made at least fifteen days after the operation, before roentgen therapy on the operative wound.

Presse Médicale, Paris

48: 97-120 (Jan. 31-Feb. 3) 1940

*Curable and Atypical Forms of Postanginal Septicopyemia Due to *Bacillus Funduliformis*. A. Lemierre, A. P. Guimaraes and J. Lemierre.—p. 97.

Nerve Lesions: Results of Surgical Treatment and Operative Indications. R. Dumas.—p. 99.

Spinal Injections of Sulfanilamide in Treatment of Purulent Meningitis. R. Martin, Panthier, Nouaille and Mlle. Hamond.—p. 101.

Atypical Forms of Postanginal Septicopyemia.—Lemierre and his collaborators report ten cases of atypical postanginal septicopyemia due to *Bacillus funduliformis*, in all of which a cure was effected. The age level of the patients was between 19 and 31 years. Medication employed in several cases and referred to as 1162 F was administered daily in doses of 4 Gm. after the first diagnostic suspicion, though the authors make no claims for its specificity. The atypical features included the following elements. Hemoculture did not always show bacterial presence initially. In two cases the bacillus was recovered only in the pus of natal abscesses; in another its presence could be established only indirectly by a flocculation test. Several cases presented a pyrexia-apyrexia fluctuation with the general health unimpaired between the febrile attacks. Several cases did not show typical arthritis. In several a submaxillary involvement was noted that was painful on palpation. The time of recovery varied considerably. One patient recovered within the period of two weeks. One presented a complete absence of pulmonary signs and articular pains. Pleural effusion was occasionally observed, sometimes only in sterile form. The cases cited demonstrate that clinical evidence increasingly shows that fatal prognosis does not apply always to postanginal septicopyemia. Whether these cases represent a special benignancy due to local conditions is a possibility. Some of the atypical cases present a grave appearance but go on to recovery contrary to expectations. Others possess the three characteristic symptoms (pyrexia preceded by intense chills, pulmonary infarcts, arthritis) and have a short evolution. Others are characterized by high fever but show no sequels; others again, after a brief and variable period of septicemia, show pulmonary, pleural or articular metastatic lesions. The single case that was almost afebrile could be determined only indirectly by the Laporte-Brocard flocculation test.

Annales Pédiatriques, Basel

154: 121-248 (Dec.-Jan.) 1939-1940

Observations on Postvaccinal Encephalomyelitis in the Netherlands During Last Few Years. B. Brouwer.—p. 121.

*Familial Infantile Form of Diffuse Cerebral Sclerosis (Krabbe). Cornelia de Lange.—p. 140.

Diagnosis of Pulmonary Agenesis. O. Saxl.—p. 180.

*Paralytic Manifestations After Synthetic Antimalarial Medicaments. K. Choremis and G. Spiliopoulos.—p. 194.

Etiology of Besnier-Boeck's Disease. P. Spiro.—p. 199.

Recurrent Ileus. S. Wolff.—p. 211.

Familial Infantile Form of Diffuse Cerebral Sclerosis.—Scarcity of reports on the familial infantile form of diffuse cerebral sclerosis, first described by Krabbe, suggests that such cases are rare. Lange believes that a better knowledge of the symptomatology, with its many characteristic aspects, might lead to the recognition of a greater number of cases of this disorder. She reports the histories of four children in one family who successively manifested the same cerebral syndrome of general rigidity, opisthotonos and deterioration of the intelligence. The first child, a girl, died at eight months; then there were twins (girls), one of whom died at thirteen and one half months. The author was able to examine the brain of this child. The brain presented some congenital abnormalities. Moreover, there was a diffuse demyelination of the entire cerebrum and of the parts of the spinal cord available for examination. There also existed extensive proliferation of normal and of pathologic neuroglia. The degree of fibrosis differed in various parts of the nervous system. The nerve cells were more or less intact. Some aspects point to a primary disease of the neuroglia. The author reviews cases from the literature and compares them with the familial juvenile form (Scholz) and with other leukodystrophies. More cases will probably be discovered if the following characteristic symptoms are kept in mind: familial occurrence, onset of illness usually a few months after birth, increasing general stiffness, often crossing of the legs (scissors

position), opisthotonos, manifestations simulating spasmophilia and deterioration of the intelligence. The intracranial pressure is not increased.

Paralytic Manifestations After Antimalarial Medicaments.—Choremis and Spiliopoulos report two cases in which excessive doses of antimalarial drugs produced paralysis which chiefly affected the respiratory muscles. The first patient was a child aged 3. For three days the child had been given daily 0.01 Gm. of plasmochin, a synthetic preparation of quinoline, 8-(diethylamino-isopentyl-) amino-6-methoxyquinolin. On the fourth day the child swallowed accidentally four tablets of 0.01 Gm. each. On the following day there were cyanosis, dyspnea, hoarseness, difficulty in swallowing and general weakness with paresis of the legs. Irregular respiratory rhythm of the Cheyne-Stokes type developed, probably as the result of an impairment of the respiratory center. It was observed that during attacks of fever the respiration became normal, but during the nonfebrile intervals the child had attacks of Cheyne-Stokes respiration. The second patient, a boy aged 6, was subjected to a combination therapy with plasmochin and atabrine. This boy developed a laryngeal spasm with partial paralysis of the respiratory muscles. In both cases the respiratory disturbances became intensified during sleep. In the second case a decided improvement of the respiratory disturbances could be obtained by injections of thiamin chloride.

Oto-Rino-Laringologia Italiana, Bologna

10: 1-86 (Jan.) 1940. Partial Index

Clinical Behavior and Semelotics of Respiratory Tract in Laryngectomized Persons. C. Baccarani.—p. 43.

*Therapy of Pain After Tonsillectomy by Vitamins B₁ and C. M. Baer.—p. 65.

Vitamins in Treatment of Pain from Tonsillectomy.—Baer observed a considerable number of cases of tonsillitis, during the past year, in which tonsillectomy was performed under local anesthesia. He states that inflammation of the tonsils is frequently associated with vitamin B₁ and C hypovitaminosis and with actual or latent rheumatism. He believes that local pain during the first twenty-four hours after tonsillectomy is due to the wound itself and to exposure of the nerve ends in the wound, whereas that which is present on the second day is due to B₁ and C hypovitaminosis, either alone or in association with rheumatism. The treatment of early local pain consists of administration of analgesics. The author was able to demonstrate a prompt favorable action with vitamins B₁ and C in fifty patients in his group who were suffering from local pain late in the postoperative period. He used two preparations, precise doses of which are not specified. In all cases the treatment caused rapid regression of local pain, improvement of the general condition and acceleration of the local process of healing.

Revista de la Asoc. Méd. Argentina, Buenos Aires

53: 1171-1238 (Dec. 30) 1939. Partial Index

*Encephalitis in Whooping Cough. F. Bazán and R. Maggi.—p. 1171.

Friedman's Reaction in Testicular Tumors. J. M. Lascano Gonzalez and R. I. Mathis.—p. 1205.

Encephalitis in Course of Whooping Cough.—Bazán and Maggi report their observations made from 1936 to 1939 in the department of infectious diseases in a pediatric hospital in Buenos Aires. Of 600 children with whooping cough, fifteen (eleven infants and four children ranging in age from 3 to 6 years) developed acute encephalitis, as a rule in the third week. They found that the course of encephalitis complicating whooping cough varies with the age of the patient, the clinical form and type of encephalitis and whether there were bronchopneumonic complications or otitis. The younger the patient the more grave the nervous complications. These may be acute, subacute or chronic with a predominance of convulsions, somnolence, paralysis, polyneuritis, ataxia, choreo-athetosis, poliomyelitis, and sensory and psychic disturbances. Convulsive forms are the most frequent. The cerebrospinal fluid either is normal or shows a moderate lymphocytic reaction. The prognosis is grave (a mortality rate of 80 per cent in grave forms of encephalitis and the development of psychic, motor or associated psychomotor sequels in 50 per cent of subacute cases). The condition is due to a toxic infection the nature and mechanism of which

are not clear. The treatment consists of administration of drugs to control convulsions, the general toxie infection and associated infections, baths, antispasmodic drugs, anesthetics, lumbar puncture for the convulsions, methenamine, a combination of cinchophen and methenamine, intravenous administration of hypertonic dextrose solution, colloidal metals, protein therapy, abscess of fixation and sulfanilamide. Associated infections are treated and vaccines against whooping cough are administered according to indications. It is advisable to watch and stimulate the functions of the cardiovascular system and to improve the organic resistance of the patients. If sequels remain, massage, electrotherapy, gymnastics and psychic reeducation are indicated. In the group of cases reported by the authors there were twelve deaths (all, but one, of infants). Necropsies performed in nine demonstrated that the pathologic lesions are not typical for whooping cough. They consist of degeneration, inflammation and hemorrhages.

Semana Médica, Buenos Aires

47: 365-424 (Feb. 15) 1940. Partial Index

- *Administration of Ascorbic Acid to Infants. J. R. Mendilaharsu and E. L. Zavala Rodríguez.—p. 365.
Cesarean Section Due to Sclerosis of Neck of Uterus from Diathermo-coagulation. J. L. Ahumada.—p. 377.

Administration of Ascorbic Acid to Infants.—Mendilaharsu and Zavala Rodríguez observed a large group of infants at the institution of puericulture in Buenos Aires. They were suffering from purpura haemorrhagica, stomatitis and glossitis, dystrophy or infections (whooping cough, pneumonia and congenital syphilis). The treatment consisted of daily intravenous injections of 0.1 Gm. of ascorbic acid up to a total dose of 1 Gm. in ten days, or of intramuscular injections of from 0.2 to 0.5 Gm. up to a total dose of 2.5 Gm. in seven days. The authors found it advisable to administer liberal amounts of ascorbic acid to infants who are artificially fed, as well as in the course of fevers and gastrointestinal disease (during which the organic needs for vitamin C are greater than they are in normal conditions). Satisfactory results were obtained from the treatment as specified in one case of purpura haemorrhagica and in eleven of thirteen cases in which there was acute stomatitis and glossitis. It also proved satisfactory in dystrophy when administered in association with other vitamins. The treatment had no effect in whooping cough and pneumonia or in congenital syphilis when administered along with arsphenamine. It had no effect on the tolerance of the patient for arsphenamine.

Archiv für Dermatologie und Syphilis, Berlin

179: 463-572 (Nov. 23) 1940. Partial Index

- Experience with Acetylsulfanilamide in Treatment of Gonorrhea. Dahlenburg.—p. 463.
*Etiology and Therapy of Mycosis Fungoides. M. Niethammer.—p. 484.
Does Use of Acetylsulfanilamide or Dimethyl Disulfanilamide Produce Impairment of Liver? Remarks on General Cutaneous Eruptions. F. Schaefer.—p. 500.
Liver and Spleen Extracts of Rabbits Immunized Against Syphilis in Treatment of Late Syphilis, with Special Consideration of Hepatic Syphilis. G. Kertész.—p. 510.
Deep Blastomycosis of Skin: Case. R. Richter.—p. 517.
Noma-like Clinical Picture Produced by Blastodendron Palati. W. Fröhlich, F. Zach and W. Piringer.—p. 521.
*Microscopy with Aid of Fluorescence Under Mercury Lamp Illumination and Capillaroscopy in Dermatologic Studies. Schmidt-La Baume and R. Jäger.—p. 531.

Etiology and Therapy of Mycosis Fungoides.—Niethammer enumerates several theories regarding the pathogenesis of mycosis fungoides and states that the majority of investigators regard it as an infectious process. He reviews the literature, which supports the infectious etiology, and presents a case in which the cutaneous lesions yielded a strain of streptococci, partly in pure culture; the strain was characterized by the formation of atypical forms. The same strain of streptococcus could be cultured from two cases of mycosis fungoides at the university clinic in Cologne. The antigens produced with these strains gave positive complement fixation with two serums from mycosis fungoides. However, the strains failed to show demonstrable pathogenicity for either rabbits or guinea pigs, so that nothing definite could be said about their etiologic significance in this disease. The author points out that favorable therapeutic results have been obtained in mycosis fungoides with mono methyl-disulfanilamide and with disulfanilamide.

Fluorescence Microscopy and Capillaroscopy in Dermatology.—Schmidt-La Baume and Jäger state that heretofore dermatologists have been able to study the surface structure of the skin to only a limited extent because of the lack of an efficient microscopic method. They demonstrate that pure surface pictures of the living skin not distorted by pictures of the deeper layers can now be obtained with a microscopic method developed by R. Jäger and F. Jäger. In this method the skin is stained with a fluorescent dye that is invisible in daylight but assumes a yellowish green fluorescence under irradiation with long wave ultraviolet and visible violet rays. A 1 to 5 per cent aqueous solution of primulin is rubbed on the area of the skin that is to be examined. The area is placed under an ultramicroscope and the fluorescence of the dye is stimulated by means of a mercury vapor lamp. The light of the lamp is passed through a special filter which passes only the ultraviolet, violet and blue parts of the light. In order to avoid interference by the stimulating lamp, another filter is placed between the objective and the ocular; this filter passes only light that has a wavelength exceeding that of the stimulating lamp. Thus only the true fluorescent light reaches the eye of the observer or the photographic plate. In this way the method produces pure surface pictures. The authors stress the advantages of the mercury vapor lamp over the large arc lamps formerly used for fluorescence microscopy. The same instrumentarium can be used for depth pictures. Good pictures of the capillaries can be obtained by omitting the filters and working with white light. Thus it is possible to observe successively a surface picture and a capillary picture of the same area of the skin. The authors reproduce a number of photomicrographs of the normal skin, of different skin lesions, of the course of the capillary reaction in case of a positive cutaneous test and of the changes in emulsions that are applied to the skin. The authors are convinced that the method will prove of great value not only in dermatology but also in industrial hygiene.

Archiv. f. exper. Pathologie u. Pharmakologie, Berlin

193: 505-735 (Nov. 24) 1939. Partial Index

- Determination of Action Value of Estrus-Producing Hormone Tablets Available on the Market. W. Koll and F. Kütz.—p. 505.
*Experimental Investigations on Elimination of Thallium in Various Body Fluids. J. Frey and Maria Schlechter.—p. 530.
Studies on Formation of Methemoglobin. B. von Issekutz Jr.—p. 551.
Inhibitory Effects of Oxidized Epinephrine. E. Sanders.—p. 572.
Thyroxine and Heart Action. H. Bauer.—p. 642.
Relations Between Anterior Lobe of Hypophysis, Thyroid and Adrenals in D Avitaminosis. E. Schulze and M. Flach.—p. 727.

Elimination of Thallium.—Frey and Schlechter report experimental investigations on the elimination of thallium in various body fluids. Their studies were prompted by a case of criminal thallium poisoning. The vomit of the woman in question contained moderate quantities of thallium as late as the thirty-fifth day after onset of the poisoning, whereas the feces contained a smaller amount of poison. The authors studied thallium poisoning in rabbits. Poisoning was produced by the subcutaneous injection of an aqueous solution of thallium acetate. The spectrographic procedure of Gerlach served for the quantitative determination of thallium in the peripheral blood, blood of the portal vein, gastric juice, cystic bile, small and large intestine, feces, urine, milk, placenta and the fetal tissues. It was found that thallium is eliminated chiefly by way of the kidneys. Thallium appears in the gastric juice a few minutes after the injection of the toxin. The concentration here depends on that of the blood but never becomes quite equal to it. In following the thallium content in the intestine, it was found that in the upper portion of the small intestine it is extremely high, for here it exceeds the concentration in the blood. Toward the middle portion of the colon it decreases somewhat and in the terminal portion of the intestine the thallium concentration again reaches that of the blood. The authors think that the increase of the thallium concentration in the upper portion of the small intestine is due to the addition of the cystic bile with its high thallium content; the decrease in concentration in the terminal portion of the intestine is accomplished by the inspissation of the colonic contents. Regarding the retroresorption of the thallium from the intestine, the authors assume that this portion of thallium returns to the liver with the blood of the portal vein, for they observed that the thallium concentration of the blood

of the portal vein was higher than that of the peripheral blood; thus thallium is influenced also by the enterohepatic circulation. Thallium enters the milk in a concentration that is slightly below that of the blood. The placenta was found to be permeable for thallium. The fetal heart, brain, liver and kidney contained the poison in considerable quantities. Pregnant animals have a higher resistance to the poison than nonpregnant animals. The abortifacient effect of thallium was corroborated. These observations on the elimination of thallium are of therapeutic significance. They suggest that efforts should be made to increase the diuresis, since the kidney is the chief organ of elimination for thallium. Because of the enterohepatic circulation of thallium, the authors recommend the use of saline cathartics. Gastric lavage with simultaneous stimulation of the gastric secretion by histamine may be of aid in the removal of thallium.

Beiträge zur Klinik der Tuberkulose, Berlin

94:1-98 (Nov. 21) 1939. Partial Index

Work Insufficiency Due to Respiratory, Cardiac and Nervous Diseases. H. W. Knipping and G. Matthiessen.—p. 1.
Mechanism of Healing of Tuberculous Cavities: Pathologic-Anatomic Study. J. Mille.—p. 26.

*Tuberculosis Fungosa Serpiginosa, A Senile Form of Cutaneous Tuberculosis. H. Hamann.—p. 64.
A Ten Year Retrospect in the Cultivation of Koch's Bacillus. C. Coronini.—p. 91.

Serpiginous Tuberculosis of Skin.—Hamann reports two cases of tuberculosis fungosa serpiginosa cured by scraping with a sharp spoon and application of pyrogallol. The first patient, aged 72, had a swelling first on the left forearm. It gradually increased. Two years later an ulcerous spot appeared on the left hand and extended to the forearm. The roentgenogram disclosed bone tuberculosis of the left ulna. Tubercle bacilli were readily found in the papillomatous infiltrations. The second patient, aged 61, had a small brown spot on the back of the right hand, which rapidly enlarged. Examination of the lungs showed tuberculosis in the right upper lobe. Tubercle bacilli were readily demonstrated in the papillomatous formations. According to the author, the disease is confined almost entirely to persons past the age of 60 and its course is relatively benign. It is usually localized on the back of the hand and on the forearm. The clinical picture is one of a cutaneous tuberculosis that rapidly extends in all directions and forms a central scar. It exhibits three zones, the central zone predominating. In the vicinity of the cicatrization, yellow-brownish spotted infiltrations develop with colloidal degeneration of the connective tissue. The peripheral outer zone presents a muddy blue-red infiltration and a tightly drawn skin, the middle zone an ulceration with papillomatous proliferations. These proliferations form clusters between which are found ulcerating surfaces covered with pus. Minute tubercles are abundantly found in the infiltrations. A pronounced necrosis is seldom observed. In the majority of the cases the disease arises from a subcutaneous tissue tuberculosis, but it may also be caused by an external superinfection. The author discusses the differential diagnosis of similar conditions. The disease is comparatively rare. Only seven cases were observed within eighteen years in the university clinic in which this study originated.

Deutsche Zeitschrift für Chirurgie, Berlin

252: 677-764 (Nov. 24) 1939

Development of Cancer on Chronic Inflammatory Basis. W. Pohl.—p. 677.

Pathology and Therapy of Atraumatic False Aneurysms. W. E. Kinstler and V. Gihron.—p. 693.

Case of Lung Fluke Disease of Brain (Paragonimiasis s. Distomiasis Cerebri): Successful Operation. N. Kawai.—p. 705.

*Foundations for Surgical Treatment of Esophageal Varices. D. M. Juzbašić.—p. 711.

Pathologic and Clinical Aspects of Nonparasitic Splenic Cysts. V. Piša and H. Šikl.—p. 746.

Treatment of Esophageal Varices.—Juzbašić presents a detailed study of the present status of the problem of the esophageal varices. He emphasizes that various developmental types and stages of extension necessitate different operations. He pays particular attention to the esophageal varices which develop on the basis of portal hypertension. He is of the opinion that every procedure which has the radical removal of esophageal varices as its aim must fulfil two requirements: 1. Measures must be taken to prevent the portal vein from sending its blood

into the vena cava by way of the esophagus. 2. A new but less dangerous blood passage must take the place of the interrupted one. In order to determine exactly what afflux passages must be interrupted and at what sites, the author made a number of experiments on cadavers with esophageal varices. He first introduced a dyestuff into the vena mesenterica superior and then executed the necessary interruptions. He then tested the correctness and efficacy of the interruptions by subsequent injection of another dyestuff, again into the vena mesenterica superior. On the basis of these experiments he suggests a surgical method which comprises three stages: (1) interruption of all venous afflux passages that pass through the lesser omentum, (2) interruption of the venous afflux passages from the splenic region and (3) production of a new discharge passage for the blood of the portal vein into the vena cava by means of one of the modifications of Talma's operation.

Monatsschrift für Kinderheilkunde, Berlin

81:1-138 (Dec. 11) 1939. Partial Index

Serum Therapy in Pneumonia of Children. Erika Hering.—p. 1.

Dysostosis Enehondralis. K. Schwartzert and W. Middelkamp.—p. 17.

Fetal Polyglobulism. E. Loeschke and K. Schwartzert.—p. 25.

*Allergic Tests in Asthma and Other Allergic Diseases of Children.

Gertrud Becker.—p. 65.

Nonspecific Therapy in Epidemic Meningitis. Ingrid von Rieben.—p. 102.

Allergic Tests in Bronchial Asthma of Children.—

Becker reports the results of allergic tests performed during the course of five years in a university clinic on eighty-seven children presenting bronchial asthma or bronchial spasms. The age level of the children (sixty-four boys, twenty-three girls) was between 2 months and 16 years, the majority between 3 and 10 years. More than a third of the children were rural. The testing materials consisted of different proprietary allergy extracts combined, for purposes of time saving and economy, into compatible aggregates that yielded six test divisions: (1) bacterial allergens; (2) animal scale allergens; (3) domiciliary allergens containing human skin scales, mold-fungi, bedfeathers, house dust and grain mites; (4) food allergens; (5) pollen antigens, and (6) multiple susceptibility. Combined tests were followed up by single tests after the group was determined. The intracutaneous method was employed as the method of choice. Positive reactions were obtained in sixty-eight of the eighty-seven children (78 per cent) and were separated into a series of tables. The largest incidence was discovered in group 1 with fourteen, group 2 with sixteen and group 6 with thirty-one. Children presenting bronchial asthma frequently (one third of the total) had been affected with eczema in early childhood or with gastric disorders. Twenty-five per cent of the children were susceptible to seasonal change or foggy weather. An increase of eosinophil cells was noted during asthmatic attacks. Typical asthma was rare. The Moro reaction applied to forty-nine children was positive in eleven cases. The author recommends the use of allergic tests in children for prompt early diagnosis of a probable allergic etiology and its prompt treatment.

Röntgenpraxis, Leipzig

11: 651-728 (Dec.) 1939. Partial Index

Hyperostosis of Frontal Bone. L. Richter.—p. 651.

*Aspects of Patella Cubiti (Elbow Cap). G. Theising.—p. 663.

Pneumonia Round Shadows. H. Oeser.—p. 676.

Lateral X-Ray Exposure in Diagnosis of Renal Calculi. D. Knuth.—p. 679.

Simulation of Pulmonary Process by Hair Braid in Roentgenologic Examination. W. M. H. Weisswange.—p. 690.

Patella Cubiti (Elbow Cap).—Theising discusses the anomalies of the extensor side of the elbow joint, the so-called "patella cubiti," the "elbow cap" or the "os epiphyseos olecrani." He reviews twenty-two cases from the literature and describes two cases of his own in which trauma was responsible for an avulsion fracture of the olecranon. Formation of new bone by the detached periosteum and intratendinous calcification as the result of hemorrhage led to the formation of a compact osseous body above the olecranon. He cites the views of other investigators regarding the various types of anomalies on the extensor surface of the elbow joint and presents his own classification. He differentiates patella cubiti of the first, second and third degree. The first degree of patella cubiti is represented by the persistent cartilaginous epiphysis between the ulnar portion of

the olecranon and the apophysis. This form is not movable. The second degree is represented by the completely developed anomaly, which is isolated, is movable, articulates and is located above the almost normal olecranon. This type he designates as patella cubiti or os epiphyseos olecrani. An olecranon that is completely isolated from the ulna is identified as the patella cubiti of the third degree. In this case the proximal end of the ulna is almost circular and is connected with an olecranon which has become a true patella cubiti by strands of connective and tendinous tissues. This anomaly may easily be confused with the pseudarthrosis that develops following a typical olecranon fracture. Avulsions of periosteum and bone, as well as their proliferations, represent the fourth group of anomalies in the elbow joint, intratendinous and intramuscular ossifications resulting from chronic or acute traumas the fifth group and true sesame bones (in Pfützner's definition) the sixth group.

Zeitschrift für Kinderheilkunde, Berlin

61: 423-532 (Dec. 22) 1939. Partial Index

- Polycythemia Vera: Case. O. Göbell.—p. 423.
 "Yellow Stools." W. Brenner and W. von Harpe.—p. 434.
 *Prognosis in Spastic Bronchitis of Infants. B. Köhler and H. Mai.—p. 481.
 Vitamin D Formation in Skin. H. Mai.—p. 503.
 Effect of Short Waves on Diphtheria Bacillus. E. Hasché.—p. 506.

Spastic Bronchitis of Infants.—Observations based on a ten year study in a university clinic of 111 cases of children presenting spastic bronchitis, with and without familial anamnesis, indicate to Köhler and Mai corroborative evidence for the possibility of the evolution of infant spastic bronchitis into subsequent bronchial asthma. Of the 111 children, twenty-five were eliminated from further study because a definite familial connection could not be determined. The familial investigations included kindred exudative manifestations such as urticaria, eczema and arthritis. Sixty-two per cent of the children (contrasted with a 22.5 per cent of a numerically equal control group) showed familial implications with the following distribution: seventeen (19.5 per cent) bronchial asthma, twenty-eight (33 per cent) eczema, gout, rheumatism, migraine and so on, eight (9.5 per cent) "chronic coughing," and others of which the exact alliance was not determinable. Thirty-eight per cent of the children possessed no familial history of the disease. On further investigations the authors found that poor reactions to ephedrine in cases of spastic bronchitis without familial involvements did not constitute proof that such spastic cases were simple cases of bronchitis and never evolved into bronchial asthma. Of twenty-six children observed without a familial disease background eighteen reacted poorly to ephedrine but showed latent asthma. On the other hand, eighteen of twenty-seven children with a familial history who had contracted spastic bronchitis during their first year of life were long afflicted with spastic attacks or stubborn bronchitis (observation time from four to five years). Furthermore, in twelve children belonging about equally to these two groups a clear evolution of spastic bronchitis into true asthma was noted. The authors accept the view that infant asthmas represent nervous involvements of an exudative diathesis and that a close connection exists between infant bronchitis and related exudative diseases.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

84: 281-380 (Jan. 27) 1940. Partial Index

- *Application of Convulsion Therapy by Means of Electric Shock. J. A. J. Barnhoorn.—p. 290.
 Kojewnikoff's Syndrome: Continuous Epilepsy. J. J. H. M. Klessens.—p. 301.
 Elimination of Large Gallstone Through Surgical Wound in Region of Appendix. B. J. de Haan.—p. 305.
 Vagotomie (Pancreatic Hormone). K. van Dongen.—p. 307.

Convulsion Therapy by Means of Electric Shock.—Barnhoorn directs attention to the electric shock therapy developed by Cerletti and Bini (abstracted in THE JOURNAL, Dec. 2, 1939, p. 2100). He describes the apparatus and reports his experiences in thirty-five cases in which 266 attacks were provoked. He compares the technical value of this method with that of the metrazol shock therapy of Meduna. The therapeutic value of the method cannot be estimated as yet, but the author thinks that the electric shock therapy signifies considerable progress in the application of convulsion therapy in psychoses. He lists a number of advantages: It is easily applied

and it produces immediate loss of consciousness and complete amnesia. This is important because it eliminates the anxiety, and the patient's objection to the treatment is overcome. Moreover, the patient rapidly recovers and there are no unpleasant after-effects and secondary reactions. The method seems to be harmless.

Acta Chirurgica Scandinavica, Stockholm

83: 385-477 (Jan. 27) 1940

- Occurrence of Double Processus Vermiformis. J. Adams-Ray.—p. 335.
 *Postoperative Thrombosis: Preliminary Study. G. Bergquist.—p. 415.
 Four Cases of Chordotomy with Microscopic Examination of One Case. E. Platou.—p. 435.
 Treatment of Fracture of Corpus Mandibulae ad Modum Ipsen. P. Sghye.—p. 445.

Postoperative Thrombosis.—According to Bergquist, prophylaxis against postoperative thromboses can be promoted by a daily analysis of the blood coagulation time before and after the operation and by the regular determination of the thrombocytic count. Employing Kristenson's pipet for the latter and Petré's procedure for the former (normal coagulation level from three to five minutes) and administering heparin when needed, the author was able to avoid thrombotic or embolic complications in fifty cases so controlled. In eight of these cases heparin was deemed necessary. He verified the observation that, whereas thrombocytes did not increase appreciably, the blood coagulation time had a tendency to fall below the lowest normal level (three minutes) between the fifth and the eighth day and occasionally as late as the tenth. Whenever this tendency occurred he administered intravenously 0.6 cc. of a 5 per cent solution of heparin. He retested after four hours. If a subnormal tendency continued, he injected an additional 1 cc. A retest was made after six hours and 2 cc. administered, if necessary. The test was repeated seven or eight hours later. To avoid loss of time and vein lesions due to frequency of venous punctures for blood sampling and intravenous application of heparin, the author tested the blood coagulation time in twenty persons (equally divided between the sexes) both by venous and by digital extraction. In general, no difference appeared in the blood levels. On the other hand, the subcutaneous administration of heparin was found to produce more painful hematomas. The author holds the generally accepted view of the etiology of thrombosis (modification in the blood stream, biochemical changes in the composition of the blood, possible endothelial lesions) but believes that vortex formations in the circulation in postoperative cases cause a prethrombotic condition, which however can be controlled and guarded against by daily blood coagulation tests. He does not believe that the coagulation time needs to be elevated to three or four times the normal level in order to insure prophylaxis but has come to think that a one minute drop may constitute in individual cases an idiopathic danger signal of a prethrombotic condition even if the minimum three minute level has not been reached.

Ugeskrift for Læger, Copenhagen

102: 27-56 (Jan. 11) 1940

- *Alkali Treatment in Diabetic Coma with Hyperazotemia and Anuria. N. B. Krarup.—p. 27.
 Extent of Lupus Vulgaris in Denmark. C. N. S. Gundtoft.—p. 32.
 Simplification of Technique in Diagnosis of Tissue. V. Eskelund.—p. 38.
 Bilateral Leiomyoma of Epididymis. J. Foged.—p. 39.

Alkali Treatment in Diabetic Coma with Hyperazotemia and Anuria.—Krarup reports a typical case of the so-called renal form of diabetic coma. On the third day the blood sugar was well regulated, the ketonuria had disappeared, the plasma chloride was normal and there were no signs of the failing circulation, but the alkali reserve was still low. The blood urea increased and anuria developed, with aggravation of the general condition. After isotonic sodium bicarbonate intravenously (1 liter of a 1.3 per cent solution daily for three days) the alkali reserve rose, the flow of urine was reestablished and there was ultimate complete restoration of renal function. The origin of the syndrome in the renal form of diabetic coma is ascribed to the acidosis, or deficiency of fixed alkali. Isotonic sodium bicarbonate intravenously after determinations of the alkali reserve is considered the most rational therapy.

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AN EVALUATION OF THE CLINICAL TOXICITY OF SULFANILAMIDE AND SULFAPYRIDINE

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The enthusiasm which attended the successful use of sulfanilamide in a remarkably wide range of infections has now been transferred to sulfapyridine. The undoubted ability of this drug to combat pneumococcal infections has naturally led to its widespread adoption in the treatment of pneumonia; but, because it is apparently as potent as sulfanilamide in other types of infection, there is a growing tendency to employ the new in place of the old and proved compound. Before this trend becomes too pronounced it seems timely to inquire into the relative toxicity of the two drugs. This is the more necessary when it is recalled that clinicians have not yet reached agreement as to the blood concentrations of sulfapyridine that are adequate to control pneumonia of pneumococcal origin. Until matters of such fundamental importance are settled, expediency should be tempered by caution.

In the present communication an attempt has been made to evaluate the relative toxicity of sulfanilamide and sulfapyridine in patients under treatment in the hospital. During the past year two different schemes of dosage were employed in the treatment of pneumonia by sulfapyridine. With the first scheme (October 1938-February 1939) the patients were given two doses of 2 Gm. each in the first four hours and were then maintained on 1 Gm. doses every four hours for forty-eight hours, after which they received 0.5 Gm. every four hours until about the seventh day, when chemotherapy was usually terminated. Because the concentrations of sulfapyridine in the blood of these patients were generally deemed to be too low, a new schedule of dosage was instituted in February 1939. This plan called for six doses every twenty-four hours starting with 2 Gm. in each of the first six doses, 1.5 Gm. for the second six doses, 1 Gm. for the third six doses and thereafter 0.5 Gm. in each dose until treatment was concluded. Fluids were also deliberately restricted to less than 2,500 cc. in each twenty-four hours. There were a good many instances in which modifications of both schemes were necessary, but the attempt to follow them provided contrasting data for a study on toxicity. The case

fatality rates in pneumococcal pneumonia with the two plans were 5.5 per cent for the earlier and 7.7 per cent for the later, or heavier, schedule.

BASIS OF COMPARISON OF CLINICAL CASES TREATED BY SULFANILAMIDE AND SULFAPYRIDINE

The following criteria have been observed in selecting cases for a study of the occurrence of toxic reactions:

1. The cases must have been followed by, or been under the supervision of, at least one of us with special attention to the recording of toxic manifestations resulting from chemotherapy.

2. The infections treated must have been of sufficient severity to warrant the employment of either heavy dosage or prolongation of treatment for longer than four days.

3. The protocols must have been as complete as possible with regard to (a) daily chemical estimations of the free and total drug in both the blood and the urine, (b) daily measurement of the volumes of the fluid intake and urinary output in each twenty-four hours, and (c) hemoglobin and white and red cell estimations on at least every second day during treatment, with differential counts when indicated.

With regard to sulfanilamide these criteria were satisfied by only 140 cases out of nearly 300. From the 140 cases the 100 patients receiving the heaviest dosage or showing the most serious toxic manifestations were selected for comparison with the patients receiving sulfapyridine. To this extent the analysis of the cases in which sulfanilamide was given errs on the side of severity. The same general criteria were applied to the patients treated by sulfapyridine, but only the first 100 acceptable cases were selected for analysis: ninety-four of these were cases of pneumonia (eighty being of pneumococcal origin), two were cases of nonpulmonary pneumococcal infections and four were cases of subacute bacterial endocarditis.

THE MILD TOXIC MANIFESTATIONS

In table 1 is shown the comparative analysis of 100 cases treated by each drug. It will be noticed as outstanding that the commonest mild toxic reactions in the sulfanilamide series were cyanosis, headache and dizziness, whereas with sulfapyridine nausea, anorexia and vomiting greatly predominated. Further it will be noted that when the 100 sulfapyridine cases are divided on the basis of the total amount of the drug administered there is a slightly higher incidence of nausea and vomiting in the lighter treated group. This is, no doubt, due to the fact that this group comprises those patients who, for this reason alone, could not or would not continue with the treatment.

There has been a disposition in many of the published reports to gloss over or make light of the incidence of vomiting. We have been much impressed by the great

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From the University of Toronto Faculty of Medicine and the Service of Dr. H. K. Detweiler, physician-in-chief, Toronto Western Hospital.

discomfort, amounting even to agony, which is induced by this complication. It may be too much to say that the frequency with which the body is impelled to resist the retention of sulfapyridine should at once raise the question of its essentially toxic character, but the protest must at least be significant. As an earnest of our convictions on this point, but also as an aid to treatment, many adjuvants and vitamin preparations have been tried without success. Since the use of nicotinic acid for patients treated by sulfanilamide has frequently resulted in a partial alleviation of the more troublesome mild toxic reactions such as depression, headache, nausea, anorexia, dizziness and cyanosis, this vitamin was also used with sulfapyridine. By administering 50 mg. of nicotinic acid by mouth with each dose of sulfapyridine we were able to decrease the frequency of vomiting and sometimes to abolish it. Although this substance is still under trial we have been able in the

TABLE 1.—Analysis of Cases in Which Dose Was Received by Mouth: Mild Toxic Manifestations

	Sulfanilamide, All Cases	Sulfapyridine		
		All Cases	Less Than 25 Gm. Received	More Than 25 Gm. Received
Number of cases.....	100	100	40	60
Average values				
Age.....	38	41.7	43.4	40.5
Total dosage, Gm.....	37	34.3	18	42.2
Duration of chemotherapy, days.....	7.4	6.7	3.75	8.7
Daily dosage, Gm.....	5	5.1	4.9	4.8
Maximum concentration of total drug in blood, mg. per 100 cc.....	9.8	10.6	9.5	11.3
Maximum concentration of free drug in blood, mg. per 100 cc.....	6.7	8.7	7.3	9.6
Nausea and anorexia.....	6	80	35 (87.5%)	45 (75%)
Vomiting.....	2	68	28 (70%)	40 (66%)
Dizziness.....	16	4	2	2
Headache.....	20	4	3	1
Cyanosis.....	64	10	3	7
Depression.....	5	7	2	5
Somnolence.....	3	4	2	2
Ringing in ears.....	14	5	2	3
Diarrhea.....	3	1	1	0

last three months to demonstrate that either with or sometimes without the concomitant use of nicotinic acid much more satisfactory results have been obtained from the employment of mucilage of tragacanth as an adjuvant.¹ By giving a suspension of from 0.5 to 1 Gm. of powdered sulfapyridine (tablets) in 1 drachm (4 Gm.) of one half British Pharmacopeia strength of mucilage of tragacanth we have been able frequently to treat patients who previously have been adamant in their refusal to take the drug. The blood concentrations resulting from this procedure of dosing have not been lowered; on the contrary, because vomiting is much reduced they have generally been higher. The single disadvantage of the method arises from the rapidity with which the tragacanth becomes sour and distasteful, requiring the mixture to be freshly made every twenty-four hours.

The blood of sixteen patients on sulfanilamide and of two patients on sulfapyridine showed a dark line easily observed between 610 and 630 millimicrons (from one to three dilutions of the washed red blood corpuscles

in distilled water were placed in a 5 mm. cell and viewed through a spectroscope having a 38 by 22.5 mm. prism face). In only two cases (in both of which treatment was interrupted for this cause) did cyanosis remain for as long as seventy-two hours after the drug was withdrawn. It is assumed that methemoglobinemia was contributory to the cyanosis in all the eighteen cases; but the rapidity with which the condition cleared makes it unlikely that sulfhemoglobinemia was present to any important degree.

THE SEVERE TOXIC MANIFESTATIONS OF SULFANILAMIDE AND SULFAPYRIDINE AS ANALYZED ON THE BASIS OF ORAL DOSAGE

The data with respect to serious toxic reactions resulting from chemotherapy by both drugs are set forth in table 2, which also contains subanalyses of the sulfapyridine series. While it cannot be claimed that all of the side effects listed in this table are of equal importance, yet they frequently occurred together in the same patients and in several instances heralded other grave toxic reactions. For this reason it is perhaps justifiable to point out that, excluding drug rashes and fevers, the number of such manifestations in 100 sulfanilamide cases totals nineteen as against sixty-three in the 100 sulfapyridine cases. If the drug rashes and fevers are included—and these are generally accepted as indications for interrupting or terminating chemotherapy—the totals are respectively forty against seventy-eight.

The occurrence of renal complications, which is discussed more fully elsewhere in this paper, was practically confined to the sulfapyridine series, in which pain in the loins, oliguria, anuria or hematuria was noted in thirty instances. The single patient in the sulfanilamide series who exhibited three of these complications had pyelonephritis and the retained drug reached a very high concentration in the blood (31 mg. per hundred cubic centimeters).

Leukopenia and neutropenia were more common in the patients on sulfapyridine. Not a single case of granulocytopenia had occurred among nearly 300 patients treated by sulfanilamide, whereas there were three cases among the first hundred patients receiving sulfapyridine. On the other hand, although slowly progressive or sudden anemia occurred with about equal frequency in the two series under review, the cases of true acute hemolytic anemia were confined to the patients on sulfanilamide.

When the 100 sulfapyridine cases are subdivided into those in which light dosage was received (forty cases in group 1) and those in which heavy doses were given (sixty cases in group 2) the seventy-eight serious toxic manifestations of the entire series are found 4.5 times as frequently in the group treated by heavy doses. It is particularly to be noted that almost all the cases exhibiting renal complications fall into group 2. Drug rashes and fevers and blood dyscrasias also occurred more frequently in this group.

When the sixty cases in group 2 in which more than 25 Gm. of the drug in all was received are further subdivided into those (forty-five cases in group 2 A) in which sulfapyridine was received for less than ten days and those (fifteen cases in group 2 B) in which it was received for more than ten days, certain important facts are revealed. By eliminating the patients (of group 2 B) on prolonged dosage the average total dose of the remainder (group 2 A) becomes 38.4 Gm. and the

1. Detweiler, H. K.; Kinsey, H. I.; Brown, W. H., and Feasby, W.: The Treatment of Pneumonia with Sulfapyridine (Dagena): Observations on Toxic Reactions, Arch. Int. Med., to be published.

average daily dose rises to 6.5 Gm., since the average duration of treatment is 5.9 days. This group therefore comprises the patients on heavy dosage who were treated for about six days and may be reasonably compared with the forty patients in group 1 who were receiving smaller doses over a shorter average period. The comparison reveals that forty-nine examples of severe toxicity were encountered in group 2A as against fourteen in group 1. It is also highly significant that almost all the severe urinary complications fall into group 2A. In the single case in group 2B and the four instances in group 1 these complications were detected in the early days of treatment while the patients were receiving intensive therapy.

Group 2B, containing the fifteen cases in which dosage was prolonged (average duration of treatment seventeen days) is noteworthy for the very large total amounts of the drug administered (average over 65 Gm.). The blood concentrations in these patients were lower than in any other group and were less, on the average, than the maximum values given in table 2, being maintained for by far the greater time at about 5 to 7 mg. per hundred cubic centimeters for the total and from 3 to 5 mg. for the free drug. This group comprises cases of empyemas or of delayed resolution (eleven cases) and subacute bacterial endocarditis (four cases).

The salient feature of this small category is that all three cases in which granulocytopenia developed fall within it.^{1a} Two of these patients died; one, concerning whom the details have already been published,² received 85 Gm. of sulfapyridine over seventeen days. Death was preceded twelve days by anuria during intensive dosage. The other two patients had subacute bacterial endocarditis and at no time received intensive chemotherapy. The average blood levels were about 7 mg. of the total drug and about 4.5 mg. of the free form per hundred cubic centimeters. Full descriptions of these two cases will later be published but it is necessary to the argument to state that for the patient who succumbed (a man of 30), the total dosage was 39 Gm. given over twenty days and for the patient who spontaneously recovered 37 Gm. in fifteen days.

It may be pertinent to record that, in all three of the cases in which granulocytopenia developed, chemotherapy had been interrupted for from three to six days for some reason of toxicity. In one it was due to anuria and a drug fever and in the other two to intractable vomiting, which was overcome by the use of adjuvants as previously noted. All three, as is indicated in table 2, exhibited leukopenia before becoming entirely agranulocytic, but in only one case did this occur more than twenty-four hours before the drug was stopped.

ANALYSIS OF THE TOXIC MANIFESTATIONS RESULTING FROM THE ADMINISTRATION OF SULFAPYRIDINE BASED ON AVERAGE MAXIMUM BLOOD CONCENTRATIONS

The only valid basis on which the toxicity of a relatively insoluble and variably absorbed drug can be estimated must be the levels attained in the blood. There are, however, obstacles to precision and clarity even here. The 100 patients on sulfapyridine were followed daily, with very few exceptions, when occa-

sional days were missed, by chemical assays of the blood for both the free and the total drug. However, it is almost impossible to provide an intelligible analysis of this considerable amount of data. What was done, therefore, was to take the average maximum concentrations of the total and the free sulfapyridine in the blood which were operative over twenty-four hours of the first ninety-six hours of treatment. They are the averages of the highest concentrations attained rather than the average levels maintained throughout treatment. By and large these maximums reflect the absorbability of the drug in terms of dosage, but they

TABLE 2.—Analysis of Cases in Which Dose Was Received by Mouth: Severe Toxic Manifestations

	Sulf. anil- amide, Entire Series	Entire Series	Sulfapyridine			
			Subanalysis of 100 Cases		Subanalysis of 60 Cases; 25 Gm. More Than Received	
			Group 1: Less Than 25 Gm.	Group 2: More Than 25 Gm.	Group 2A: For Less Than 10 Days	Group 2B: For More Than 10 Days
			Re- ceived	Re- ceived	Re- ceived	Re- ceived
Number of cases.....	100	100	40	60	45	15
Average values						
Age.....	38	41.7	43.4	40.5	40	42.4
Total dosage, Gm.....	37	34.3	18	42.2	38.4	65.6
Duration of chemotherapy, days.....	7.4	6.7	3.75	8.7	5.9	17
Daily dosage, Gm.....	5	5.1	4.0	4.8	6.5	3.0
Maximum concentration of total drug in blood, mg. per 100 cc.....	9.8	10.6	9.5	11.3	12.2	8.9
Maximum concentration of free drug in blood, mg. per 100 cc.....	6.7	8.7	7.3	9.6	10.5	7
Delirium.....	2	7	2	5	5	0
Nervous twitching.....	0	3	0	3	3	0
Peripheral neuritis.....	1	1	0	1	0	1
Pain in loins.....	1*	4	0	4	3	1
Oliguria (less than 400 cc. in 24 hours).....	1*	16	2	14	13	1
Anuria.....	0	4	0	4	3	1
Hematuria (microscopic).....	1*	6	2	4	4	0
Leukopenia (less than 4,000 per cu. mm).....	3	10	3	7	4	3
Granulocytopenia.....	0	3	0	3	0	3
Mild anemia (of gradual onset)	5	6	1	5	4	1
Subacute anemia.....	2	3	1	2	1	1
Acute hemolytic anemia.....	3	0	0	0	0	0
Drug rash.....	7	7	1	6	4	2
Drug fever.....	14	8	2	6	5	1
Totals.....	40	78	14	64	40	15

* Occurring in the same patient.

also include examples of accumulation of the drug when this occurred in the first four days of treatment.

In table 3 the 100 cases of the sulfapyridine series are divided into categories based on the average maximum blood concentrations regardless of dosage or duration of treatment. It will be seen that nausea and vomiting have about the same incidence in all groups. The fact that they occur less frequently in the group with the highest concentrations may in itself be a partial explanation for the levels attained. It might be argued that this observation lends some support to the view that vomiting is a local phenomenon, especially since tragacanth has been useful in overcoming this complication. On the other hand every patient who has been treated by us by injection alone has suffered from nausea and the majority have vomited, and this strongly suggests that there is also a central causation.

1a. In all three cases the polymorphonuclear cells entirely disappeared from the blood.

2. Morgan, J. R. E., and Detweiler, H. K.: The Haematological Study of Seventy-Six Pneumonia Cases Treated with Sulfapyridine, Including a Fatal Case of Agranulocytosis, *J. Lab. & Clin. Med.* 25: 275 (Dec.) 1939.

The analysis in table 3 is self explanatory but attention is drawn to group C, which includes the toxic manifestations occurring in all patients (groups A and B) having higher blood concentrations of the total drug than 10 mg. per hundred cubic centimeters and of the free than 8 mg. The significant facts again emerge that oliguria and anuria are found in the cases exhibiting high concentrations in the blood and that the serious toxic reactions occur comparatively seldom in the cases which do not attain these high levels. It requires, however, to be emphasized that leukopenia, anemia, rashes and fevers may occur in any group and that neither low dosage nor low concentrations should be regarded as a license to relax the precautions necessary to guard against these complications. It has been our custom to stop chemotherapy as soon as rashes or drug fevers are detected, and for this reason we are unable to sub-

accumulated free form. Several examples of this have been encountered and commented on;⁴ but it has also been noted that apart from renal failure there is a considerable variation in the rate at which acetylation proceeds in different cases. Acetylation is generally considered to be an attempt on the part of the liver to detoxicate poisonous substances, and it would be reasonable to expect that the conjugated form of sulfapyridine would prove to be a good deal less toxic than the free form.

Marshall's statement⁵ that conjugated sulfapyridine is actually more toxic to animals than is the free form raises a point which requires confirmation. In this series it has been noticed that irrationality and delirium, nervous twitching, hematuria, pain in the loins, oliguria and anuria have most frequently been found in association with demonstrably high concentrations of the conjugated fraction. Rashes, fevers, leukopenia and one case of granulocytopenia have also been observed following earlier high blood concentrations of the acetylated form, although it must be said that the majority of the latter complications occurred in the absence of such evidence.

We have been impressed by the coincidence of these occurrences but it is impossible to state that they provide convincing proof of the contention that the conjugated form is more toxic than the free drug. In all instances in which the severe toxic reactions were found in association with a high level of the conjugated forms, the concentrations of the free drug was also high or renal failure was present. The concentration of the total drug was, of course, very high; and, while this fact does not necessarily support the thesis that acetylation actually increased the poisonous properties of sulfapyridine, it certainly does not suggest that the attempt at detoxication had been very successful.

In the human subject with normal renal function the conjugated form of sulfapyridine is apparently excreted more rapidly than the free drug.⁴ Marshall's observation⁵ might justify speculation as to whether the failure to "detoxicate" sulfapyridine in the process of acetylation is compensated by an increased excretion of the conjugated form. It is our opinion that the facts are susceptible of a different interpretation. While remarking on the great insolubility of the conjugated form of sulfapyridine and its proclivity for impairing renal function, Marshall⁵ did not clearly differentiate between the essentially poisonous potentialities of acetylsulfapyridine and the complications due to its physical properties. Seven of eight dogs used in his experiment died within forty-eight hours of receiving sodium acetylsulfapyridine intravenously. All showed crystalline deposits in the collecting tubules and stones in the urinary tract at necropsy. The eighth dog was anuric for forty-eight hours and died on the eighteenth day. These results suggest that obstruction brought about by the precipitation of crystals of acetylsulfapyridine into the tubules caused renal failure and that death resulted from this rather than from actual tissue damage due to toxicity.

Of the four patients who had acute anuria in the presently reported series, only one died in this state (case 2⁴). At autopsy crystals were found in the collecting tubules, in which there was also considerable toxic damage to the lining renal epithelium. The blood concentrations at death were very high for free sulfa-

TABLE 3.—Relation of the Concentration of Sulfapyridine in the Blood to the Commoner or More Severe Toxic Manifestations

	Subgroups				Entire Series
	A	B	(A + B) = C	D	
Average maximum concentrations of sulfapyridine in the blood in mg. per 100 cc. {Total Free	>12 >10	10.12 8-10	>10 > 8	<10 < 8	10.6 8.7
Number of cases.....	30	25	55	45	100
Nausea and anorexia.....	23 (77%)	20 (80%)	43 (78%)	37 (82%)	80
Vomiting.....	19 (60%)	17 (68%)	36 (66%)	32 (71%)	68
Cyanosis.....	4	4	8 (15%)	2	10
Delirium.....	2	3	5	2	7
Nervous twitching.....	3	0	3	0	3
Pain in loins.....	2	1	3	1	4
Oliguria.....	9 (30%)	5 (20%)	14 (26%)	2 (4.5%)	16
Anuria.....	4	0	4	0	4
Hematuria (macroscopic).....	3	2	5	1	6
Leukopenia (< 4,000 per cu. mm.).....	6 (20%)	2	8 (15%)	2	10
Granulocytopenia.....	1*	0	0	2 + 1*	3
Mild anemia (of gradual onset).....	2	2	4 (7%)	1	5
Subacute anemia.....	0	3	3	1	4
Drug rash.....	3	8	6 (11%)	1	7
Drug fever.....	4 (13%)	2	6 (11%)	2	8

* In all cases of granulocytopenia more than 37 Gm. was received over a period longer than fifteen days. The asterisk denotes the same patient. See text.

stantiate the claim of others³ that these are frequently the precursors of other dangerous manifestations of toxicity. It is nevertheless important to recognize that anemia, leukopenia, granulocytopenia and urinary dysfunction may occur without any warning in the form of either drug rashes or fevers.

THE RELATIONSHIP OF THE CONJUGATED FORM OF SULFAPYRIDINE TO TOXICITY

It has been stressed in a recent report⁴ that the occurrence of high values for the acetylated or conjugated form of sulfapyridine in the blood is particularly associated with partial or complete renal failure. An increase in the conjugated moiety is a natural result of such failure since, if the liver function is not disturbed, acetylation will continue at the expense of the

3. Long, P. H., and Bliss, Eleanor A.: The Clinical and Experimental Use of Sulfanilamide, Sulfapyridine and Allied Compounds, New York, Macmillan Company, 1939.

4. Brown, W. H., Thornton, W. B., and Wilson, J. S.: Observations on the Absorption, Distribution and Excretion of Sulfapyridine, Dagenan et al. 693, J. Clin. Investigation 18: 803 (Nov.) 1939.

5. Marshall, E. K., Jr., and Litchfield, J. T., Jr.: Some Aspects of the Pharmacology of Sulfapyridine, J. Pharmacol. & Exper. Therap. 67: 454 (Dec.) 1939.

pyridine (17 mg. per hundred cubic centimeters) but only 3.8 mg. per hundred cubic centimeters was in the conjugated form. In the three cases in which recovery occurred from the anuric state a very rapid accumulation of the conjugated moiety preceded and accompanied the cessation of renal function.⁴ The suggestion is therefore made that the animal experiments and our clinical observations are complementary and constitute strong evidence that renal complications due to sulfapyridine

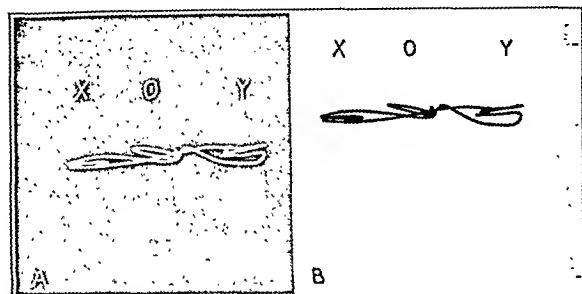


Fig. 1.—A wire yoke carries three nests of capsules. The small, innermost capsule, X, contains 65 mg. of free, or pure, sulfapyridine. Capsule O is empty, and capsule Y contains 65 mg. of acetylsulfapyridine crystals as recovered from the urine of a patient on sulfapyridine therapy. In both instances the capsules were placed in a folder and roentgenographed from 24 inches with a 20 milliamperere current. A was exposed for three seconds with 20 kilovolts and B for one and one-half seconds with 40 kilovolts. No cassette or Bucky grid was used.

therapy have their origin in the great insolubility of acetylsulfapyridine rather than in an increased toxicity of this "detoxicated" form of the drug. For this reason we continue to urge that when the output of urine of patients receiving sulfapyridine falls below 1,000 cc. in twenty-four hours the concentrations of both the free and the total sulfapyridine in the blood should be ascertained and the fluid intake at once increased in an attempt to prevent supersaturation of the urine. When severe oliguria or anuria occurs it has been our practice to administer hypertonic dextrose solutions by the continuous intravenous drip method. From 300 to 400 cc. of 20 to 25 per cent dextrose given over a period of two to four hours has on three occasions been rapidly successful in restoring renal function.

CRYSTAL AND CALCULUS FORMATION IN PATIENTS RECEIVING SULFAPYRIDINE

Recognition that oliguria, anuria and hematuria occurring during treatment by sulfapyridine are probably related to the formation of crystals in the urinary tract has led to the current use of the term "renal irritation" to denote these complications. The statement of Long and Wood⁶ that crystalline deposits are found in the urine of practically all individuals who receive sulfapyridine is in accord with our own experience. There is a distinct relationship between the rate at which acetylation proceeds and the amount of crystals deposited in the urine. The urines of patients who conjugate the drug rapidly, and who therefore excrete acetylsulfapyridine in high concentrations, invariably contain very large amounts of crystals. The reverse is also true. The only patients who, while receiving substantial amounts of sulfapyridine, show few or no crystals in the urine are demonstrably those who conjugate the drug slowly and excrete little of the acetylated form in the urine.

The crystals are usually colorless and appear as flat, thin plates with a sharply pointed elliptic outline. They are precipitated from both acid and alkaline urines, and changes in reaction do not alter their physical characteristics. If urine containing crystals is first thoroughly mixed and analyzed and then after centrifuging is subjected to fractional analysis, it is found that the supernatant fluid of the second analysis contains from 95 to 99.5 per cent of all the free drug found in the mixed specimen. The crystalline deposit on the other hand is almost entirely made up of acetylsulfapyridine. If the crystals are washed with water, dried and repeatedly recrystallized from one sixth normal acetic acid the melting point becomes constant at about 225 C., which closely corresponds with the melting point of pure acetylsulfapyridine. There can be no doubt that the crystals commonly found in such patients consist almost entirely of acetylsulfapyridine. We have not been able to alter the rate or degree of precipitation by giving alkalis by mouth; urines of p_H 9 exhibit large amounts of the crystals of acetylsulfapyridine in the same field with the crystals of triple phosphates.

The crystals of both free and acetylated sulfapyridine are slightly opaque to x-rays. Small gelatin capsules (Parke, Davis & Co., No. 5) 1 cm. long and 4.5 mm. in diameter containing 65 mg. of either form of the drug are easily seen in x-ray films exposed for three seconds to 40 kilovolts (fig. 1). When, however, the same capsules are placed in the pelvis of the kidneys



Fig. 2.—Showing that when the wire yoke bearing the three capsules shown in figure 1 is placed in the renal pelvis of a cadaver and roentgenographed by kidney, ureter and bladder (K. U. B.) flat plate technic (55 kilovolts, 23 milliamperere current for three seconds) using cassette and Bucky grid, no sign of the capsules or their contents is seen. The same result was obtained with 48 kilovolts. The capsules were afterward recovered intact from the cadaver.

or the bladder of a cadaver and roentgenographed with kidney, ureter and bladder (K. U. B.) technic, no trace of the capsules can be observed (fig. 2). This clearly demonstrates that small calculi consisting only of sulfapyridine or acetylsulfapyridine cannot be detected in the urinary tract by routine kidney, ureter and bladder x-ray technic.

6. Long, P. H., and Wood, W. B., Jr.: Observations upon the Experimental and Clinical Use of Sulfapyridine: II. The Treatment of Pneumococcal Pneumonia with Sulfapyridine, *Ann. Int. Med.* 13:487 (Sept.) 1939.

Owing to the greater solubility of both the free and acetylated forms of sulfanilamide, crystals are very seldom found in the urine of patients receiving it. Very occasionally long needle-like crystals, easily mistaken for tyrosine, are found in the urine. These on analysis have been shown to consist almost entirely of acetyl-sulfanilamide.

In view of the observations on the patients treated by sulfapyridine a follow-up investigation was instituted. At the time of writing, fifty-two of the 100 patients at present under review have been examined, between six and twelve months after discharge from the hospital. Only two of these have complained of symptoms suggesting mild renal colic, and in both of these a distinct narrowing of the right ureter near the pelvic brim was demonstrated by x-rays using a contrast medium (diodrast). No calculi were visible. Both patients have refused cystoscopy. Neither had shown evidence of renal irritation during the actual period of chemotherapy. Of the remaining fifty patients, none complained of symptoms referable to the urinary tract. The fifty-two patients constituted a representative series: Thirty-eight fell into the group on heavy dosage and thirty-one into the group who under treatment exhibited total concentrations of sulfapyridine in the blood that were higher than 10 mg. per hundred cubic centimeters (table 3, subgroup C). Eight patients had oliguria and one became anuric while receiving sulfapyridine. Two had had gross hematuria. The patients were first investigated by kidney, ureter and bladder x-ray study and twenty-one were noted to have shadows suggestive of calculi in the urinary tract. When these patients were reexamined with use of intravenous diodrast, no abnormalities or calculi in the urinary tract were detected in the x-ray films, with the two exceptions already noted. Contrast mediums were also employed in the examination of nine other patients with completely negative results.

The importance of these largely negative observations lies in the general characteristics of the series as a whole. Most of the patients investigated had been heavily treated with sulfapyridine while on deliberately restricted fluid intake. This resulted in very high blood concentrations of sulfapyridine and an unusually large number of urinary complications. It must be remembered, however, that retrograde pyelograms have not been done and that only thirty patients in all have been studied by intravenous contrast mediums, and of these two have some narrowing of undetermined origin in the right ureter. Of the remaining twenty-two patients who were investigated by kidney, ureter and bladder technic it may only be said that they are symptom free and have no radiopaque calculi in the urinary tract.^{6a}

HEPATITIS AS A SIDE EFFECT OF SULFAPYRIDINE THERAPY

There has been considerable speculation as to whether sulfapyridine causes hepatitis. We have on three occasions successfully employed sulfapyridine to control pneumonia in patients who also had severe hepatitis without observing that the liver dysfunction was increased. On the other hand the occurrence of hepatitis after chemotherapy has been instituted has usually been considered to be an indication for withdrawing the drug, although it has not yet been established whether this precaution is necessary.

In a previous report⁴ it was stated that in the surviving patients who were treated by oral administration alone, the last measurable quantity of sulfapyridine disappeared from the blood in sixty hours and from the urine, excepting faint traces, in ninety-six hours after the final dose had been given. This statement still stands, with allowable latitude in the definition of the word "measurable"; but it requires some qualification. In the report in question a protocol was included of a patient (case 4) who received sulfapyridine intramuscularly as a 33 per cent solution of the sodium salt as well as sulfapyridine by mouth; and a curious phenomenon was noticed: although the blood was reported to be free from sulfapyridine 120 hours after the last dose had been given by mouth, measurable (and variable) quantities were recovered in the urine for 136 hours and traces appeared for a further thirteen days. These data were considered unusual and were attributed to the fact that intramuscular injections had been employed. Hepatitis followed the cessation of chemotherapy, but it was thought that no valid conclusion could be drawn as to any interrelation between the prolonged excretion of the drug and liver damage. Since that time two patients have died, one ten days and the other forty days after receiving the last dose of sulfapyridine. Neither showed any evidence of hepatic damage in life or in death. In the first case at necropsy 45 mg. of sulfapyridine was found in the liver. In the second case the blood had been reported as negative for sulfapyridine on the sixth day after the final dose had been given but traces were present in the urine until the thirty-first day and at death traces were still recoverable from the liver. These facts have no great importance from a quantitative point of view in regard to excretion, but they indicate that minute quantities of sulfapyridine may be excreted by patients who had neither intramuscular injections nor hepatitis for much longer than we had formerly thought. They also indicate that sulfapyridine remains in the liver for a very long time, and this fact should be borne in mind before the drug is completely exonerated as a cause of liver damage.

COMMENT

The evidence which has already been discussed strongly suggests that sulfapyridine is essentially more toxic than sulfanilamide. The more frequent occurrence of leukopenia and granulocytopenia is indicative of this. On the other hand, dogmatic pronouncements are out of place when conclusions are drawn from a small series of cases, and great care must be taken to sift the evidence on which such conclusions rest. It is, in the first place, pertinent to recall that a large number of the serious toxic reactions encountered in the sulfapyridine series were urinary complications. In all probability these owe their origin to the formation of crystals of the highly insoluble acetylsulfapyridine (as discussed in the present paper and by Long and Wood⁶), and it is considered likely⁴ that the serious renal disturbances may be largely avoided by maintaining the fluid intake at a figure (from 3,000 to 3,500 cc. in twenty-four hours) which should insure a urinary output of not less than 1,000 cc. in twenty-four hours. The urinary complications constitute a very undesirable and serious drawback to sulfapyridine therapy on both clinical and toxicologic grounds, but they may be considered to be more related to the physical characteristics of the drug than to its purely toxic properties. Unfortunately, in practice these niceties of distinction

6a. Dr. W. C. Kruger and Dr. T. W. Dean of the Department of Radiology, Toronto Western Hospital, made the roentgenologic studies here reported.

become academic since urinary dysfunction leads to an accumulation of sulfapyridine⁴ in the body and thus increases its noxious potentialities.

Most of the serious toxic reactions of sulfapyridine occurred in patients on a schedule of dosage which produced an accumulation of the drug in the blood, especially when the fluid intake was reduced. Since it is not known that such high concentrations as were attained are necessary to control pneumococcal infections, and since very few of the serious toxic manifestations of sulfapyridine were encountered in the first forty-eight hours of treatment, we consider the scheme of dosage advocated by Long and Bliss³ and Long and Wood⁶ to be superior to either of the methods here described. In other words, the maximum blood concentrations should be reached at the very beginning of treatment and should be allowed to fall after a short period of maintenance.

We believe, however, it has been shown that high blood concentrations of sulfapyridine may be dangerous and that they should be avoided unless it is certain that lower concentrations are not controlling the infection. It is on the latter aspect of treatment that authoritative pronouncements are most urgently required, and the facts can be ascertained only by expectant undertreatment. The range between adequate blood concentrations and those which carry an unwarrantable risk of serious toxicity has been shown to be so narrow as to provide justification for a more conservative approach to the chemical treatment of pneumonia and to constitute a valid argument against the indiscriminate substitution of sulfapyridine for sulfanilamide in non-pneumococcal infections.

CONCLUSIONS

1. The vomiting caused by the administration of sulfapyridine appears to be of both local and central origin. Mucilage of tragacanth and nicotinic acid are of value in combating the vomiting and other mild toxic reactions.

2. Although methemoglobinemia contributes to cyanosis in a small number of cases, sulfhemoglobinemia has not been encountered.

3. The serious toxic manifestations have been found twice as frequently in the series treated by sulfapyridine as compared with the series on sulfanilamide.

4. Oliguria, hematuria, pain in the costovertebral angle and anuria are serious and fairly common complications of intensive sulfapyridine therapy, particularly when the concentrations in the blood are high. These sequelae are related to the insolubility of acetylsulfapyridine, which precipitates in characteristic crystals in acid and alkaline urines. For this reason the fluid intake should approximate 3,000 cc. or more in twenty-four hours, and the urine volume in a like period should not be allowed to fall under 1,000 cc.

5. Although leukopenia occurs more frequently in the sulfapyridine series and especially when the dosage is heavy, it is also encountered in both series and may occur when the doses are small or treatment is of short duration.

6. Acute hemolytic anemia with icterus was encountered only in the cases in which sulfanilamide was administered. Both series comprised instances of gradual and suddenly developing anemia.

7. Three cases of granulocytopenia were encountered in the 100 cases in which sulfapyridine was given. All three occurred in cases in which treatment was maintained for longer than fifteen days at low blood concentrations.

8. Patients treated with intensive doses and in whom high blood concentrations of sulfapyridine were attained showed a very high incidence of serious toxic reactions.

9. Drug rashes and fevers are useful signs of toxicity, but serious toxic complications may occur without these warnings.

10. Sulfapyridine may remain in the liver in small quantities for as long as forty days after chemotherapy has been terminated. No conclusion has been reached as to whether sulfapyridine causes hepatitis.

11. Sulfapyridine is essentially more toxic than sulfanilamide.

705 Medical Arts Building.

HODGKIN'S DISEASE

AN ANALYSIS OF 212 CASES

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NEW YORK

This study, consisting of an analysis of 212 histologically proved cases of Hodgkin's disease, is made in the hope of contributing further data to this important subject.

Of these cases, 126 were followed by the Radiation Therapy Department of Bellevue Hospital and eighty-six at the New York City Cancer Institute during the eleven years 1926-1936 inclusive. Fifty-four additional cases clinically diagnosed as Hodgkin's disease were omitted because histologic examination was not made. Of the cases studied, 123 remained under observation until death occurred. Autopsy was performed on thirty-four, or 28 per cent.

AGE AND SEX INCIDENCE

That Hodgkin's disease may occur at any age is demonstrated in this series, in which the youngest patient was 6 and the oldest 76. A study of the age distribution reveals the greatest number of cases occurring in the third decade.

The youngest patient recorded in the literature is that of Priesel and Winkelbauer,¹ a girl 4½ months old who died of this disease, which had been present since birth. A cervical node removed from the mother in the last month of pregnancy showed Hodgkin's disease.

In the series reported here 143 (67.5 per cent) were males and sixty-nine (32.5 per cent) females. This is in agreement with the data of Wallhauser,² who in a compilation representing twenty-one publications listed 1,009 males and 438 females, a ratio of 2.3 to 1.

It is noteworthy that, of the eighteen children under 15 years of age in our series, sixteen were boys. Of patients over 15 years of age with Hodgkin's disease, the percentages were 65 for males and 35 for females.

RACE AND NATIONALITY

Races and nationalities are often respected by various diseases. However, Hodgkin's disease attacks, without exception, members of every race. In this series the occurrence in Jews, Italians and Negroes was noted as forty-four (20.7 per cent), forty-one (19.3 per cent) and fourteen cases (6.6 per cent) respectively. In the year 1936, 21.1 per cent Hebrews, 5.6 per cent Italians

From the Division of Cancer, Department of Hospitals, New York City. Ira L. Kaplan, M.D., director.
1. Priesel, A., and Winkelbauer, A.: *Virchows Arch. f. path. Anat.* 262: 749, 1926.
2. Wallhauser, Andrew: *Hodgkin's Disease*, *Arch. Path.* 10: 522 (Oct.), 672 (Nov.) 1933.

and 4.2 per cent Negroes were admitted to the Radiation Therapy Department of Bellevue Hospital. Peirce, Jacox and Hildreth³ at Michigan, in a study of 214 cases, found a racial distribution predominantly white and American born. Among their patients there were three Jews and one Negro. A few of their patients were of European origin.

ETIOLOGY—PREDISPOSING FACTORS

As far as could be determined there were no demonstrable predisposing factors in any of the cases studied. Environment, occupation, food and previous disease were not outstanding factors, and in no instance was there a familial history of Hodgkin's disease. McHeffey

TABLE 1.—Age Distribution

Decade of life.....	1	2	3	4	5	6	7	8
Number of cases.....	11	25	62	46	24	25	15	4

and Peterson⁴ have recently reported two cases of Hodgkin's disease occurring almost simultaneously in two brothers, aged 11 and 13 years.

In only fifteen cases (7 per cent) was there a family history of tuberculosis. In spite of constant decline in the incidence of tuberculosis, it is the general belief that there is an increase in Hodgkin's disease.

In four cases there was a history of recent trauma to the involved area. One patient, a high school student, had a thorough physical examination at which time there were no significant manifestations, but three days later he was struck on the neck by a basketball, and in two weeks a node the size of a walnut, which later was proved Hodgkin's disease, appeared in that area.

SYMPTOMS

The most frequent initial symptom was lymph node enlargement (79 per cent in this series). In 8 per cent loss of weight and weakness were the major early symptoms. Nine patients complained of pruritus as the first symptom, which was present from three weeks to four years prior to the appearance of enlarged lymph nodes. In fourteen and twelve cases cough and dyspnea respectively were the first symptoms to call the attention of the patient to his condition.

PHYSICAL FEATURES

Many of the patients gave the impression of being in apparently good condition. Usually those patients whose first symptom was other than adenopathy were in much poorer condition and the disease ran a much more rapid course. This may be interpreted as evidence of the presence of deep adenopathy, which indicates a silent progress of the disease. In most instances the lymphadenopathy was the only physical change observed at the time of examination. The enlarged glands were usually arranged in a group of from three to five, firm, irregular and of varying size, some of which were often larger than 3 cm. The nodes were somewhat adherent to one another and as the disease progressed, or when recurring after irradiation, coalescence was more pronounced.

The lymph nodes most commonly involved in a simple inflammatory hyperplasia, namely, the cervical, inguinal and axillary glands, were involved with

corresponding frequency in this lymphogranulomatous process. This fact, of course, does not necessarily indicate an infectious etiology. Other groups of nodes, e. g. the epitrochlear, antebachial and popliteal, are rarely involved. In this series there were no instances of involvement of the antebachial and popliteal glands; in only five cases did the epitrochlear nodes show enlargement, and in two of these the epitrochlear adenopathy was bilateral. This is an important aid in distinguishing this disease from lymphosarcoma, in which these glands frequently become involved. The areas most frequently involved are, in order, cervical, supraclavicular, axillary and inguinal. Three patients were attracted to their condition by a swelling on one side of the sternum. This enlargement represented involvement of the sternal lymph glands which lie at the margin of the sternum along the line of the internal mammary artery. In these three patients axillary adenopathy appeared at a later date.

A characteristic of Hodgkin's disease in its early stage is that unilateral lymph areas are attacked with greater frequency than symmetrical areas; that is, one is more apt to find enlarged glands in the corresponding supraclavicular and axillary areas than in both supraclavicular fossae.

In other forms of lymphoblastoma, such as lymphosarcoma and leukemia, the involved nodes are more apt to be symmetrically enlarged. This may possibly indicate that lymphogranuloma can spread by direct extension through the pathways of the lymphatics. Of the four patients in whom lymph nodules were found in the breast, three had positive biopsies of the corresponding axillary glands. This can theoretically be interpreted as an instance of retrograde metastasis. Another illustration of direct extension may be found in the epidural lymphogranulomatous processes occasionally found in the spinal canal on postmortem examination. The location of the epidural nodules almost uniformly corresponds to the sites of maximum visceral involvement, i. e. the mediastinal and retroperitoneal areas.

TABLE 2.—Symptoms Present Before Adenopathy Was Noticed

Symptom	No. of Cases	Symptom	No. of Cases
Loss of weight.....	19	Furuncles.....	2
Weakness.....	19	Fever.....	2
Cough.....	14	Pain in serotum.....	1
Dyspnea.....	12	Pain in right hip.....	1
Pruritus.....	9	Pain in sternum.....	1
Pain in chest.....	3	Wheezing.....	1
Pain in back.....	2	Nausea.....	1
Ascites.....	2	Jaundice.....	1

In one instance fluctuation was present in a gland, which ruptured to discharge a thick white purulent material characteristic of caseous material from a tuberculous source. Discharging sinuses persisted in seven cases after surgical procedures. Of these seven patients one died of miliary tuberculosis, another had had a tuberculous appendix removed five years previously, a third had pulmonary tuberculosis, and some microscopic sections of a fourth showed tubercles while other sections revealed Hodgkin's disease. From these four cases one may infer that draining sinuses in Hodgkin's disease are usually due to associated tuberculosis.

INVOLVEMENT OF ABDOMINAL CAVITY

Because of their deep location on each side of the aorta, the abdominal glands involved in Hodgkin's disease are not usually accessible to palpation, even though

3. Peirce, C. B.; Jacox, H. W., and Hildreth, R. C.: *Am. J. Roentgenol.* 36: 145 (Aug.) 1936.

4. McHeffey, G. J., and Peterson, R. F.: *Hodgkin's Disease Occurring Simultaneously in Two Brothers*, *J. A. M. A.* 102: 521 (Feb. 17) 1934.

they are diffusely enlarged. However, at times involved nodes in the lowermost portion of the iliac fossa may be felt at the rim of the pelvis.

In this series the gastrointestinal tract was involved in two cases, the stomach in one and the sigmoid in the other. Hayden and Apfelback⁵ in 1927 reviewed twenty-six cases and presented three new cases of gastrointestinal Hodgkin's disease. Only nine individuals (4.2 per cent) exhibited clinical jaundice. White, Minot and Isaacs have reported icterus of varying intensity in 10 per cent of their series.

Occasionally the involved retroperitoneal nodes may by pressure and encroachment obstruct the ureters, producing hydronephrosis. Five examples illustrating moderate hydronephrosis are available in the present series.

Of the eighty-nine early cases, splenomegaly was noted in only three and hepatomegaly in only one, but not to any marked extent. Little mention of this infrequency of splenic enlargement in early cases is noted in the literature. In fact, as a differential aid a palpable spleen in a patient of fairly good health should tend to make one hesitate in making a diagnosis of Hodgkin's disease. In the advanced stage this feature is more apt to confirm the diagnosis. Of the 123 cases in the advanced stage, the spleen and liver were palpable in sixty-four and forty-five cases respectively. In cases in which death occurred from the disease, postmortem examination almost invariably showed enlargement of the spleen. Boyd⁶ records from 60 to 65 per cent of cases showing splenomegaly in Hodgkin's disease.

THORACIC INVOLVEMENT

Cough and dyspnea are the most frequent symptoms indicating mediastinal involvement. A small percentage of the cases (6 per cent) showed hoarseness which was due to paralysis of the vocal cords, caused by pressure of nodes on the recurrent laryngeal nerves. It is safe to assume that, if the supraclavicular nodes and the corresponding axillary nodes are involved, the mediastinal nodes also are probably enlarged. Wessler and Greene⁷ emphasize the frequency of enlargement of the paratracheal nodes in Hodgkin's disease.

Because of the rapidity of growth of the mediastinal lymph nodes, with resultant pressure on the pulmonary and azygos veins, there is more apt to be found a pleural effusion rather than a development of the collateral chest veins. In contrast, slower growing mediastinal tumors, such as bronchogenic carcinomas of the lung with mediastinal nodes, are more apt to produce a compensatory venous dilatation on the chest wall.

Roentgenographically, the changes which take place in the mediastinum are indicated by a gradual transition from thickening of the hilar areas to a widening of the mediastinum and invasion of the adjacent lung fields. There is no uniform pathognomonic roentgenographic picture of mediastinal Hodgkin's disease. In no instance was there enlargement of the mediastinal nodes without palpable cervical, supraclavicular or axillary adenopathy.

Of the eighty-nine early cases there was involvement of the mediastinum in thirty and pleural effusion, as demonstrated by the roentgenogram, in four of these. Of the 123 advanced cases, in ninety-four there was mediastinal enlargement, with twelve instances of

unilateral or bilateral pleural effusions. The explanation of the development of pleural effusion may be pressure on the pulmonary or azygos veins, or irritation by lymphogranulomatous nodules on the pleura. On five occasions a chylous fluid was obtained on aspiration from the pleural cavity, indicating obstruction of the thoracic lymph duct.

Despite many examinations of the pleural fluids for characteristic tumor cells, only the large pleural endothelial cells were found.

Autopsy material with complete histologic studies revealed that the parenchyma of the lung may become involved in the following sequence: (1) rupture of the capsule of the involved mediastinal glands with direct invasion of the adjacent lung, (2) spread of the lymphogranuloma along the interlobular and peribronchial lymphatics and (3) distribution of primary discrete nodules throughout the parenchyma of the lung.

TABLE 3.—Frequency of Lymph Areas Involved

Lymph Area	First Involved		Involved at Some Stage	
	Right	Left	Right	Left
Cervical.....	66	59	136	116
Supraclavicular.....	10	6	70	66
Axillary.....	16	10	90	88
Inguinal.....	21	14	74	62
Sternal.....	2	1	5	3
Epitrochlear.....	0	0	4	3

In nineteen instances the parenchyma of the lung was dotted with nodules ranging in size from a ten cent piece (18 mm.) to a half dollar (30 mm.). The roentgenogram of such a case ordinarily could not be differentiated from the roentgenogram of metastatic carcinoma. One interesting case reported by Rubenfeld⁸ closely resembled a bronchogenic carcinoma with atelectasis, with no palpable adenopathy. It regressed under high voltage irradiation and six years later showed a generalized lymphadenopathy followed by death. Necropsy showed diffuse Hodgkin's disease.

CUTANEOUS MANIFESTATIONS

The presence of cutaneous manifestations in Hodgkin's disease has been appreciated for many years. In the group of cases under discussion, the skin was involved in eighty (38 per cent). There were gradations from a simple pruritus to multiple nodules and occasionally a generalized exfoliative dermatitis. Nine patients stated that the pruritus was present before palpable adenopathy appeared. The pruritus may exist alone or in conjunction with other morphologic cutaneous lesions. Often the annoying itching causes the patient to inflict numerous scratch marks. Another frequent feature is the presence of many superficial ulcerated papules similar to those found in scabies. Herpes zoster, present in nine cases, usually indicates involvement of nodes at the corresponding spinal level in the mediastinum or retroperitoneum. Two cases exhibited a generalized exfoliative dermatitis. One case history is worthy of brief mention; the patient noticed, nine months prior to his admission, eczematous lesions on his upper extremities which gradually extended until the entire body was red, exfoliated and weeping. Enlarged lymph glands were noticed but were clinically diagnosed as chronic inflammatory in nature. Various ointments and injections were tried without success. Finally an axillary node was removed and the diagnosis

5. Hayden, Helen C., and Apfelback, C. W.: *Gastrointestinal Lymphogranulomatosis*, Arch. Path. 4: 743 (Nov.) 1927.

6. Boyd, William: *The Pathology of Internal Diseases*, Philadelphia, Lea & Febiger, 1931.

7. Wessler, Harry, and Greene, C. M.: *Intrathoracic Hodgkin's Disease*, J. A. M. A. 74: 445 (Feb. 14) 1920.

8. Rubenfeld, Sidney: *Radiology* 23: 627 (Nov.) 1934. Rubenfeld, Sidney, and Clarke, Eugene, *ibid.* 28: 614 (May) 1937.

of Hodgkin's disease was made. Biopsy of the skin lesion revealed a diffuse infiltration of lymphocytes. It is wise to suspect cases of generalized exfoliative dermatitis not responding to ordinary therapy as possible cutaneous manifestations of Hodgkin's disease.

In a review of 333 cases of Hodgkin's disease (Wallhauser²), some type of cutaneous manifestation appears in ninety-eight cases (29 per cent). In contrast with the frequent involvement of the skin, the mucous membranes remain conspicuously free of involvement. Another lymphatic area rarely involved is the tonsil. In our 212 cases there was no instance of involvement of the tonsils. This is an important aid in distinguishing this disease from lymphosarcoma.

OSSEOUS INVOLVEMENT

Of the 212 patients under consideration, fourteen (6.6 per cent) showed roentgenographic disturbances of the osseous system, suggestive of lymphogranulomatous involvement. Craver and Copeland,⁹ in an analysis of 172 cases of Hodgkin's disease, found twenty-seven (15.7 per cent) in which there was involvement of the bone.

In the present series x-ray films of the skeleton were taken only when pain or deformity warranted such an examination. In several instances routine films of the chest suggested lymphogranulomatous foci in the bony

TABLE 4.—Frequency of Cutaneous Manifestations

Type of Involvement	No. of Cases	Type of Involvement	No. of Cases
Pruritus.....	34	Furuncles.....	3
Dryness, with superficial desquamation.....	20	Urticaria.....	3
Pigmentation.....	15	Exfoliative dermatitis.....	2
Herpes zoster.....	9	Multiple bullae.....	1

thorax. If complete skeletal studies were made in every case a higher frequency of bone involvement might have been demonstrated.

The most frequent areas of involvement were, in the order named, vertebral column, pelvis, ribs, upper ends of the femurs, and sternum. Less frequently the ends of the humeri and other long bones and the skull were involved. When the long bones were involved the deposits were most frequently in the proximal and distal thirds. It is worthy of note that the portion of the bone most frequently involved corresponds to the actively hemopoietic portion of the bone marrow.

There was no characteristic roentgenographic picture of these granulomatous foci. They were most frequently osteolytic, closely resembling metastatic carcinoma. Less frequently osteoblastic changes were found, although it was not uncommon to have a combination of the two. The bone lesions of Hodgkin's disease, in comparison with metastatic carcinoma, are less painful and more radiosensitive.

Of the nine instances of vertebral involvement, the dorsal portion was involved in seven and the lumbar in two. Collapse of the vertebral body occurred once, but the intervertebral disk was spared in all nine cases.

That Hodgkin's disease may affect the bone without demonstrable significant lymphadenopathy is reported by Krumbhaar¹⁰ and Herscher.¹¹ Each one reported a case in which there were lesions in the bone marrow without apparent involvement of the lymph nodes.

NEUROLOGIC DATA

An occasional complication occurring during the course of Hodgkin's disease is paralysis. Weil¹² reported forty-three cases of paralysis due to involvement of the spinal canal. In our series ten instances of transverse myelitis, eight in the dorsal segments and two in the lumbar levels, were found. The greater frequency of dorsal involvement may be explained by the greater incidence of mediastinal lymphadenopathy as compared to abdominal manifestations. The pathology of this disturbance can best be understood by reference to the clinical histories:

CASE 1.—A man aged 23 sought admission in January 1930 because of a lump in the right axilla of three months' duration; high voltage irradiation was given and the enlarged nodes disappeared. Two years later nodes appeared in the left axilla and an x-ray film revealed a widening of the mediastinum. High voltage therapy was started, but the patient did not return to complete the course, having received as little as 200 roentgens to each area. Eight months later pain appeared in the upper portion of the back and the patient complained of a tightening in the chest wall (girdle sensation). Shortly after, paralysis occurred at the level of the sixth dorsal vertebra. At autopsy the essential observations were as follows: A retropleural mass extended back into the paravertebral space, eroding the vertebral column at the junction of the sixth and seventh vertebrae. The lymphogranulomatous process was continuous with nodules in the epidural space and compressed the spinal cord and its membranes.

CASE 2.—A man aged 49 was admitted in September 1934, complaining of enlarged cervical and inguinal glands of three months' duration. High voltage irradiation was given to the involved areas with regression of the nodes. In December 1934 the patient collapsed on the street and examination showed a spastic diplegia of the lower extremities with retention of feces and urine. A distinct sensory change was found at the level of the sixth dorsal spine. High voltage irradiation was given, with 1,200 roentgens, after which slight improvement was noted. In February 1935 a laminectomy was done, at which time scar tissue was seen encircling the spinal cord at the site of the myelitis. Following this surgical procedure a moderate amount of improvement was noticed.

In two other cases herpes zoster corresponding to the same spinal level preceded the paraplegias. From this it may be assumed that herpes zoster was caused by the lymphogranulomatous process surrounding and invading the ganglions corresponding to the peripheral areas involved. It may be concluded with reservation that the occurrence of herpes zoster in Hodgkin's disease is an indication for prophylactic high voltage therapy to the spinal column to prevent the development of a paraplegia.

It is believed that the lymphogranulomatous process extends along the lymphatics of the nerve roots and produces myelopathy (1) by direct compression of the cord and (2) by mechanical obstruction of its blood and lymphatic supply, either within the intervertebral foramina or outside the spinal canal. The strangulation of the spinal arteries in the granulomatous tissue is by far the most important cause of the myelomalacia. Pathologically this accounts for the frequent poor results obtained after irradiation in the paraplegia of Hodgkin's disease. The lymphogranulomatous tissue disappears under the effect of radiant energy but is replaced by scar tissue, which in turn encircles the nutrient vessels of the spinal cord. Death usually results from one to six months after the onset of paraplegia. Paraplegia may also be caused, but much less fre-

9. Craver, L. F., and Copeland, M. M.: Changes in the Bone in Hodgkin's Granuloma, *Arch. Surg.* 28:1062 (June) 1934.

10. Krumbhaar, E. B.: *Am. J. M. Sc.* 182:764 (Dec.) 1931.

11. Herscher, Harry: *Am. J. Roentgenol.* 35:73 (Jan.) 1936.

12. Weil, Arthur: Spinal Cord Changes in Lymphogranulomatosis, *Arch. Neurol. & Psychiat.* 26:1009 (Nov.) 1931.

quently, by collapse of involved vertebrae producing angulation and compression of the cord. In this series there was no instance of paraplegia occurring on this basis.

BLOOD PICTURE

There is considerable difference of opinion as to the blood picture in Hodgkin's disease. Wiseman¹³ states that Hodgkin's disease usually, but not always, possesses a characteristic blood picture. He interpreted these characteristics as suggesting an alteration of the reticulum cell-monocyte maturation cycle. However, most observers feel that the changes in the blood are neither typical nor constant.

The blood studies in this series have been done by many workers, sometimes prior to, at other times during or after, irradiation. Usually there was a normal total leukocyte count or a slight leukopenia. In the more advanced type the total white count was increased. One patient, in a late stage, had a total white count of 52,000 cells with no evidence of infection. There was an increase of neutrophils in nearly all cases, with a relative increase of monocytes and diminution in lymphocytes. About 20 per cent of cases showed an eosinophilia; the highest eosinophil count was 28 per cent of 27,000 white blood cells. Secondary anemia was a characteristic feature, and its severity was usually comparable to the rapidity of the disease. With the institution of irradiation there resulted a drop in the total leukocyte count (from 3,000 to 5,000 white blood cells) with a further lymphopenia.

THE OCCURRENCE OF FEVER

In 1887 Pel¹⁴ and Ebstein¹⁵ noticed a periodic pyrexia which occurred in cases of advanced Hodgkin's disease. They described a remittent type of elevated temperature, which rises in from three to five days until it reaches a level of about 103 F., maintaining itself for approximately five days and then gradually falling to normal in a similar period. At the end of ten days or so it may again begin to rise. These periodic bouts of fever may extend over many months or even a year.

The more common type of pyrexia is the low grade continuous variety in which the temperature mounts to 100 or 101 F. each evening. If the disease progresses, a higher peak is reached and terminally a temperature of from 104 to 105 F. is observed. In our series an elevated temperature occurred in the presence of widespread generalized adenopathy, but occasionally it was seen in those cases in which the adenopathy was limited, especially to the abdominal nodes.

In this group of cases the continuous type of pyrexia was the usual picture and the Pel-Ebstein variety was uncommon. However, one of the most characteristic features was the relationship of the pulse to the temperature curve. In almost all cases the pulse was proportionately at a considerably higher level. If the temperature varied between 98 and 102 F. the pulse could often be counted at a rate of from 90 to 120 per minute. By this relationship it was often possible to detect cases in which the pyrexia was due to concomitant infection, e. g. respiratory or urinary infection, when the pulse and temperature curves were approximately on the same level.

Of the patients dying in the hospital, about 75 per cent had had a prolonged pyrexia. Not infrequently patients with generalized adenopathy and splenic

enlargement died, having had little or no fever during the course of the disease. This suggests that there is some other factor besides the central necrosis of a gland to account for the elevation of the temperature.

DURATION OF LIFE

The clinical course of Hodgkin's disease may be rapidly fatal or slowly progressive. The average duration of life of the 123 patients who died under observation was 32.06 months, dating from the onset of symptoms. Of these 123 patients eighty-six were male, and the duration of life was 31.1 months; thirty-seven were female and their span of life after the first symptoms was 34.3 months. Of this group the shortest course was two and a half months and the longest eleven years. Almost all the patients received some form of radiation. Many of them received inadequate therapy either on account of their inability to tolerate therapeutic dosage or because of failure to return to complete their outlined courses. A few received surgical treatment in addition. In the 123 cases followed to death, the duration of life after the institution of treatment was 23.8 months. The average length of time that the patient had symptoms before receiving radiotherapy was 8.26 months.

Between 1926 and 1931 inclusive, 109 patients were admitted, of whom eleven, or 10 per cent, lived five years or more after irradiation. Craver¹⁶ showed a survival in fifteen cases (12 per cent) of five years or over in 125 proved cases of Hodgkin's disease.

Minot and Isaacs in 1926,¹⁷ in their analysis of 410 cases of lymphoblastoma, came to the following conclusions: "Thus it might be considered that irradiation had not influenced the duration of the cases lasting six or more years, yet had doubled the chances of persons from 25 to 45 years old having their disease from three to six years, and that it had influenced some groups less markedly, and others not at all or unfavorably."

In those few cases in which surgical removal was attempted and was followed by irradiation, no untoward results or greater spread of the disease was noticed. On the assumption that death is caused by a generalized toxemia, the removal of the involved superficial lymphadenopathy theoretically should prolong life, but from a practical standpoint this procedure is obviously inadvisable.

Examination of the microscopic sections lent little or no aid in determining prognosis. Many of the more cellular types ran prolonged courses, while those exhibiting fibrous reaction had a short duration, and vice versa.

SUMMARY

1. This study consists of an analysis of 212 proved cases of Hodgkin's disease, 126 from the Radiation Therapy Department of Bellevue Hospital and eighty-six from the New York City Cancer Institute, during the years 1926-1936 inclusive.

2. Hodgkin's disease shows a preponderance in men between the ages of 20 and 40 years. Its occurrence in girls under 15 years of age is unusual.

3. There were no demonstrable predisposing factors in any of the cases.

4. In 79 per cent of the series lymph node enlargement was the first abnormality drawing the attention of the patient to his condition. Nine patients first complained of pruritus from three weeks to four years prior to the appearance of the enlarged glands.

13. Wiseman, B. K.: The Blood Picture in Primary Diseases of the Lymphatic System, *J. A. M. A.* 107: 2016 (Dec. 19) 1936.

14. Pel, P. K.: *Berlin klin. Wchnschr.* 24: 644, 1887.

15. Ebstein, Wilhelm: *Berlin klin. Wchnschr.* 24: 565-827, 1887.

16. Craver, L. F.: *Am. J. M. Sc.* 188: 609 (Nov.) 1934.

17. Minot, G. R., and Isaacs, Raphael: *Am. J. M. Sc.* 172: 157-173 (Aug. 1926); Lymphoblastoma (Malignant Lymphoma), *J. A. M. A.* 86: 1185 (April 17) and 1265 (April 24) 1926.

5. Unilateral lymphadenopathy was more common than symmetrical involvement in early cases.

6. Discharging sinuses occurred in seven cases, possibly indicative of a concomitant tuberculosis.

7. There was infrequency of splenomegaly in early cases, usually palpable enlargement of the spleen in advanced cases, and almost 100 per cent involvement in postmortem studies.

8. There was no uniform pathognomonic roentgenographic mediastinal picture of Hodgkin's disease. In no instance was there enlargement of the mediastinal nodes without palpable cervical, supraclavicular or axillary adenopathy.

9. In nineteen instances the parenchyma of the lung was dotted with nodules, varying in size from a ten cent piece to a half dollar.

10. There was involvement of the skin in eighty cases (38 per cent), in which there appeared gradations from a simple pruritus to multiple nodules and occasionally a generalized exfoliative dermatitis.

11. Fourteen individuals (6.6 per cent) showed roentgenographic disturbances of the osseous system. There was no uniformly pathognomonic roentgenographic sign of these granulomatous foci. They were most frequently osteolytic, closely resembling metastatic carcinoma.

12. There were ten instances of diplegia, eight at the dorsal and two at the lumbar level, corresponding to the presence of mediastinal and retroperitoneal lymphadenopathy. The transverse myelitis may be explained by an epidural invasion with a resulting choking off of the blood supply to the spinal cord. Little improvement was noticed after high voltage irradiation, the lymphogranulomatous extension being replaced by scar tissue.

13. In the blood studies, the most constant feature was a diminution in the lymphocytes with an increase in monocytes.

14. A continuous low grade type of pyrexia was present in most cases. The Pel-Ebstein variety was uncommon. The marked elevation of the pulse, out of proportion to the temperature, was striking in the advanced cases.

15. The average duration of life after onset of symptoms of the 123 patients who died under observation was 32.06 months. The average duration of life after the institution of therapy was 23.8 months. Eleven patients (10 per cent) lived five years or more after irradiation.

16. The disease varies markedly in virulence, clinical course and response to treatment.

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Good Posture a Complex Problem.—A fundamental point about standing correctly is that good posture is not purely a matter of the feet. It is a question of muscle balance and transmission of body weight through the optimum line of carriage. In other words, the center of gravity must come through the bony structure of the body in such a way as to cause the least strain. The mechanics alone involved in this complicated problem are sufficient to baffle a mathematician, since a single joint has so many possible mechanical positions that are still within normal and each muscle acting at that joint has a stress and pull that is variable to an immeasurable extent. The muscles are controlled by the nerves, and these nerves work on a reflex basis, so that the problem becomes very complicated if it is traced to its ultimate scientific explanation.—Hauser, Emil D. W.: *Diseases of the Foot*, Philadelphia, W. B. Saunders Company, 1939.

HIGH LIGATION OF THE FEMORAL VEIN IN AMPUTATIONS OF THE LOWER EXTREMITIES

A PRELIMINARY REPORT BASED ON TWENTY-EIGHT AMPUTATIONS OF THE THIGH

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The mortality rate for amputation of a lower limb for vascular gangrene has remained excessively high, although it was one of the earliest major operations to be performed. Even the introduction of aseptic surgical technic and safe anesthetic agents has failed to reduce this rate in proportion to most other standard operations. There are many factors influencing the mortality of amputation of the lower extremities, but one stands out conspicuously: the development of postoperative pulmonary complications.

During a five year period ending in December 1933 there were 171 amputations of the extremities for primary vascular gangrene (arteriosclerotic, diabetic and thrombo-angiitis obliterans) at the New Orleans Charity Hospital.¹ Sixty-seven of these patients died, a mortality of 39.1 per cent. There were twenty-four definite pulmonary complications among this group. Following this study an earnest effort was made to reduce the extremely high death rate. A check-up three years later showed that there had been 104 amputations for arteriosclerotic gangrene with thirty deaths, a rate of 28.8 per cent.² Again pulmonary complications were by far the most important cause of death, seventeen of thirty cases. Fifteen of these were classified as pneumonia and two as pulmonary embolism. A study of the onset and clinical course of these cases led me to believe that some classified as pneumonia were really due to multiple pulmonary emboli with secondary pneumonitis. In other words, the pneumonia was embolic rather than infectious in origin. Dissection of the stumps of patients dying following amputation revealed that in certain cases an antemortem clot had formed in the stump of the femoral vein. The thrombus extended several inches up the vein in some and for a shorter distance in others. When infection or recurrent gangrene was present in the stump, phlebitis was found involving the lower segment of the vein. Undoubtedly this could be the source of small or large septic emboli.

Homans³ has shown that thrombosis of the deep veins of the lower leg is a much greater danger than femoro-iliac thrombophlebitis. He has demonstrated that a clot forming in the deep veins of the leg extends upward to the popliteal vein, and here the clot swings back and forth in this dilated portion and may easily be torn off and swept into the general circulation and become lodged in the lungs. I believe that a similar set of circumstances may at times develop in the stump of the femoral vein following amputation. When a vein is ligated, a clot usually forms in the distal end and extends proximally only to the point where a tributary joins the vein. After amputation a clot may form in the narrowed lower section of the femoral vein if the

From the Department of Surgery of the Gallinger Municipal Hospital.
1. Veal, J. R., and McFarland, Elizabeth: *The Surgery of Gangrene of the Extremities*, Springfield, Ill., C. C. Thomas & Co., 1935.
2. Veal, J. R.: *The Mortality Rate of Arteriosclerotic Gangrene*, J. A. M. A. 110:763-789 (March 12) 1938.
3. Homans, John: *Venous Thrombosis in the Lower Limbs: Its Relation to Pulmonary Embolism*, Am. J. Surg. 28:316 (Nov.) 1937; *Thrombophlebitis in the Legs*, New England J. Med. 218:594 (April 7) 1938.

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tributaries are small or too few in number and may extend upward to the large dilated portion and be swept into the general circulation. If there should be an infection of the stump and a phlebitis involving the lower femoral vein, septic emboli may be given off.

There are certain anatomic variations in the deep veins of the thigh that predispose to thrombus formation in the femoral vein after amputation through the thigh at any level. The femoral vein begins at the inguinal ligament and runs an oblique course down the inner aspect of the thigh to terminate in the popliteal vein. Dissection of these veins in some twenty cadavers revealed many variations in the tributaries to the femoral vein. The main tributaries are the deep profunda and great saphenous veins. In its upper position there are several smaller named tributaries, and throughout its course it receives muscular branches which vary widely in size, number and distribution. It gradually increases from below upward but enlarges suddenly just above the entrance of the deep profunda and saphenous veins. The saphenous is the most constant in size and point of entrance into the femoral vein. Because of its high position, its superficial position and its numerous branches it plays little part in the formation of a thrombus in the femoral vein after amputation. The saphenofemoral junction, however, are very important in the formation of a postamputation femoral thrombosis. From these dissections I have been able to divide the various patterns of the venous channels into four distinct

In group 1 (fig. 1 a), apparently the most common, the deep profunda vein is almost as large as the femoral vein and joins it as a single branch just below the saphenofemoral junction. The muscular tributaries are numerous and large and present a fairly even distribution. There is little space between the branches, so

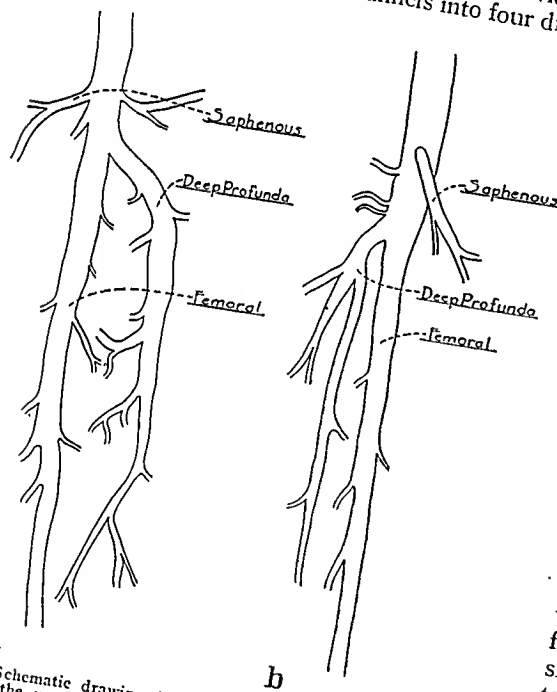


Fig. 1.—Schematic drawing from dissections of the thigh showing two patterns of the venous channels in which the tributaries of the femoral are numerous and well distributed. Such distribution of the tributaries prevents the formation of a large thrombus after ligation of the femoral vein.

groups according to the number, size and distribution of the tributaries to the femoral vein from the saphenofemoral junction to the popliteal vein. In grouping the various patterns I have been primarily concerned with the deep profunda and the unnamed muscular branches that join the femoral vein in a bizarre fashion in its course down the thigh.

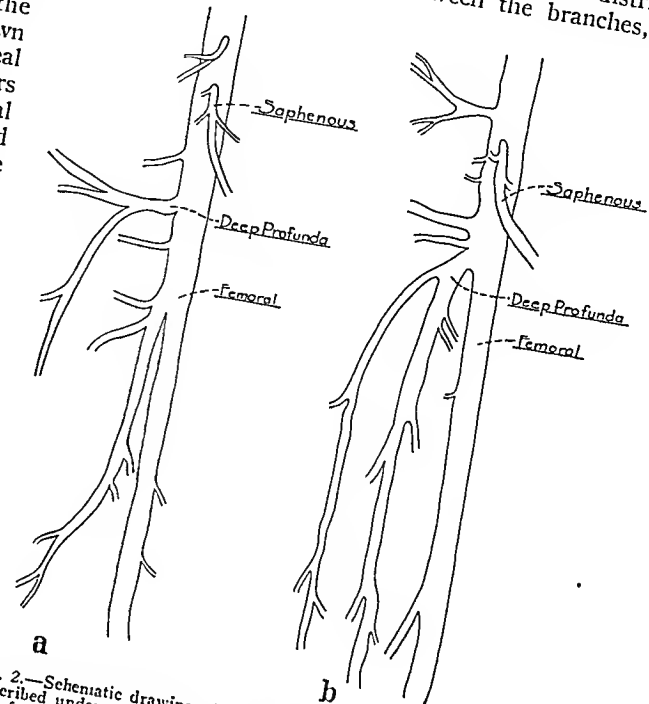


Fig. 2.—Schematic drawing of the types of venous patterns of the thigh, as described under groups 3 and 4. Note the scant number of tributaries to the femoral vein below the mouth of the deep profunda vein. Such distribution of the tributaries favors the formation of a long thrombus after ligation of the lower femoral vein.

that the femoral vein receives a good flow of blood at all levels. In group 2 (fig. 1 b) the deep profunda is made up of several large branches which unite to form a single tributary just before entering the femoral vein. The smaller tributaries again are found to be numerous and well distributed. In group 3 (fig. 2 a) the deep profunda is divided into two branches, which join the femoral at different levels. The tributaries to the femoral vein distal to the lowest branch of the profunda are very few in number, are quite small and leave long portions of the vein devoid of any afferent branches. In group 4 (fig. 2 b) the deep profunda vein again enters at a high level as a large single branch, but there are practically no other tributaries until the popliteal femoral vein at any level is not apt to lead to an extensive thrombosis because there are sufficient tributaries to insure a constant flow of blood into it above the ligated point (fig. 3 a). In groups 3 and 4 ligation of the lower femoral vein is likely to cause the development of a long thrombus extending from the point of ligation upward to the entrance of the deep profunda branch (fig. 3 b). It is in these two groups that there is a real anatomic basis for the formation of a dangerous thrombus after amputation of the limb.

From these studies I decided to attempt to overcome the danger of embolism from thrombus formation in the femoral stump by preliminary high ligation of the femoral vein. It is impossible to determine the pattern of the deep veins of the thigh without exploration; therefore I consider it necessary to perform this high ligation

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tion in all amputations of the lower extremities. I have now employed this procedure in twenty-eight consecutive amputations of the thigh, and not a single pulmonary complication has developed. The first nine patients were operated on at Charity Hospital in New Orleans and the remaining patients at Gallinger Municipal Hospital in Washington, D. C. In the two hospitals the type of cases have been quite similar as to the age of the patient, the duration and extent of gangrene and the degree of vascular disease. In twenty-four cases the indication for amputation was either arteriosclerotic or diabetic gangrene. The indication was chronic osteomyelitis in three cases and epidermoid carcinoma in one. There have been five deaths in this group, a mortality rate of 17.8 per cent. Four of these deaths occurred in diabetic patients, and one patient, aged 87, had arteriosclerotic gangrene. In none, however, was there any evidence of pulmonary complications, nor was any pulmonary disorder found at autopsy.

It is interesting to compare the results obtained in this small group with my two previous series of amputations reported from the Charity Hospital in New

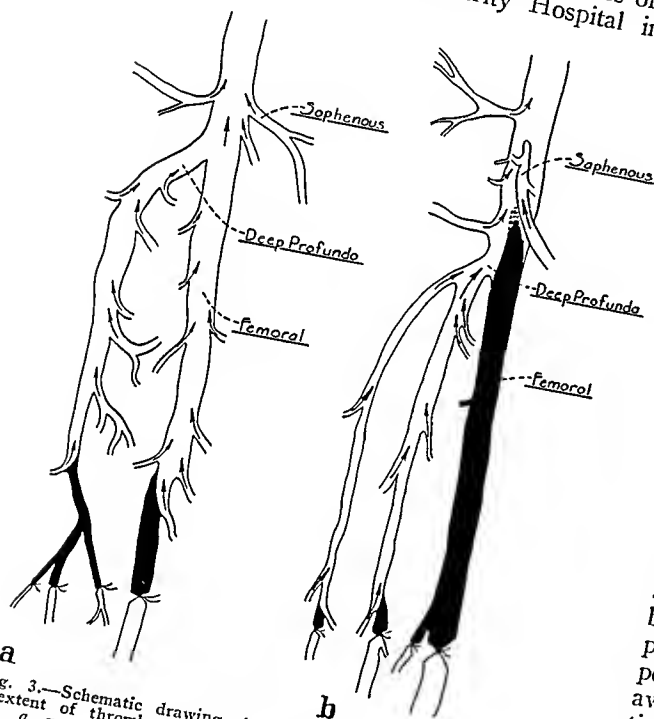


Fig. 3.—Schematic drawing showing the influence of tributaries on the extent of thrombus formation after ligation of the lower femoral vein: *a*, numerous well distributed collaterals limiting the thrombosis; *b*, inadequate tributaries allowing a long thrombus to form and project into the dilated portion of the femoral vein above the entrance of the deep profunda vein.

Orleans. In the first series of 171 cases the mortality rate for amputation of the thigh was 55.5 per cent (forty-five cases with twenty-five deaths). In the second series the mortality rate for amputation of the thigh was 33⅓ per cent (sixty-nine cases with three deaths). In the present series the entire group required amputation above the knee, and yet the mortality has been reduced to 17.8 per cent. In the two groups of 275 amputations from Charity Hospital, there were ninety-seven deaths, of which forty-one (42.2 per cent) resulted from some type of pulmonary complication. In other words, in 14.9 per cent of the entire series a fatal pulmonary complication developed. As I have already stated, the type of case in these three groups has been similar. The type of amputation has been the

modified circular in almost every case. The method of preoperative preparation and postoperative care for the last two groups has been practically the same. The essential difference in their management has been the preliminary high ligation of the femoral vein. The striking results of this procedure in eliminating pulmonary complications in the present series of twenty-eight cases seems worthy of further study and application.

The technic of ligating the femoral vein above the deep profunda is usually quite simple and requires only a few minutes. The leg and entire thigh are prepared in the usual manner. The sterile drapes are applied so that the femoral triangle is exposed. The femoral vein can be easily approached in the femoral triangle, as it is most superficial in this region. The vein lies medial to the femoral artery and is enclosed in the femoral sheath. The best landmark is the saphenous vein. This vein joins the femoral vein about 1½ inches below the inguinal ligament. By exposing the saphenous vein at this level through a short vertical incision, one can follow it down to the femoral vein. In some cases the lymph glands will be found to be enlarged, and if they obstruct the exposure of the femoral vein they must be excised. After the vein has been exposed, it is ligated with braided silk just distal to the saphenofemoral junction. I have found that a medium size, curved, noncutting needle which has had its point removed answers the purpose admirably for passing the ligature. As soon as the ligation has been completed, the deep tissue is closed with plain catgut and the skin the usual manner. The amputation is then performed in the femoral vein at several levels; that is, above and below the saphenofemoral junction. When the ligation has been performed above the saphenous vein, edema is likely to develop in the stump. This edema will disappear within two or three weeks as the collaterals develop. When the ligation has been performed distal to the saphenous vein, edema does not develop. For this reason I prefer ligating the femoral vein just distal to the saphenofemoral junction. The flow from the saphenous vein also insures a steady stream of moving blood and prevents the formation of a thrombus. Venous pressure studies on the femoral vein, when ligation is performed at this level, have shown that there is an average rise of pressure of about 20 mm. of saline solution after the ligation. This degree of elevation of pressure does not retard healing in any manner but, I feel, furnishes sufficient venous congestion to promote prompt healing.

COMMENT

From previous studies it has been shown that pulmonary complications occur frequently after amputation of the lower limb for vascular gangrene. The most frequent of these complications is pneumonitis, but there is reason to believe that the pneumonitis is embolic, and the source of the emboli is the stump of the femoral vein. In some subjects the femoral vein is almost devoid of tributaries from the entrance of the deep profunda to the origin of the popliteal vein. This anatomic arrangement of the tributaries predisposes to thrombus formation in the long femoral stump after amputation. The clot may extend upward to the dilated portion of the femoral vein and be torn off and swept into the circulation. If a local phlebitis occurs in the stump, a shower of small septic emboli may be swept into the circulation and become lodged in the

lungs and produce pneumonitis. By ligating the femoral vein just distal to the saphenofemoral junction one eliminates the danger of embolism from the femoral stump. The results obtained from this procedure in twenty-eight consecutive amputations of the thigh seem to bear out these assertions.

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CUTANEOUS CARCINOMA DIAGNOSED CLINICALLY WITHOUT BIOPSY

RESULTS OF TREATMENT IN A CONSECUTIVE SERIES

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Since large numbers of cutaneous carcinomas are treated without a biopsy having been made and since reports on extensive series of such tumors are relatively few, we have collected data from a series of 829 cutaneous carcinomas diagnosed clinically but without a biopsy. Until comparatively recently it has been customary at the Huntington Hospital to treat cancer of the skin without a biopsy. As a result, the tumors available for histologic study were for the most part those treated by surgery, the large number treated by radiation thus being excluded. Since surgery was very often the method of last resort after poor response to irradiation—and for treatment of metastases—it is obvious that our studies based on histologically verified cutaneous tumors must necessarily give a biased picture of the results of treatment. For this reason we felt that a review of the end results in a series of cases of carcinoma of the skin in which a biopsy was not done would be necessary to give a complete knowledge of the behavior of cancer of the skin and the results to be expected from different forms of treatment.

All patients entering the Collis P. Huntington Memorial Hospital from 1928 to 1932 inclusive with cancer of the skin not histologically verified are included in the series. Malignant conditions of the mucocutaneous junctions are not included. This series may be contrasted with reports on histologically verified basal cell carcinomas and epidermoid carcinomas already presented.¹ Every effort was made for a complete follow-up on each patient. If a patient was lost, inquiries were sent to the friend whom patients were required to mention on admission, and to the physician referring the patient. If the patient was still untraced, letters were sent to the town clerk requesting the cause of death given on the death certificate, if such existed. The death records of the Massachusetts Division of Vital Statistics were also searched for all untraced patients. There are 829 clinical cutaneous carcinomas in 757 cases in the present series. There were forty-five lesions without a follow-up of one year, and 134, or 16.2 per cent, patients were lost by the end of the fifth year. Fifty-one patients who had more than one lesion are included in this series. A subsequent paper will deal with multiple lesions in detail.

From the Collis P. Huntington Memorial Hospital.

1. Warren, Shields; Gates, Olive, and Butterfield, P. W.: The Value of Histologic Differentiation of Basal Cell Carcinoma. *New England J. Med.* 215: 1060 (Dec. 3) 1936. Warren, Shields, and Hoerr, S. O.: A Study of Pathologically Verified Epidermoid Carcinoma of the Skin. *Surg., Gynec. & Obst.* 69: 726 (Dec.) 1939.

SITE OF LESION AND SEX OF PATIENT

The distribution of the lesions arranged according to age and sex is shown in table 1. The number of lesions on sites such as the ear and extremities, which are usually treated surgically, is low. The numbers of males and females are strikingly similar. However, this is probably not a true reflection of the relative frequency in the two sexes but rather due to the fact that women are more aware of lesions on the face than are men and so tend to appear with smaller lesions, which are less frequently submitted to biopsy. However, in the fourth decade even in this series there are twice as many lesions in males and more lesions of the ear in males as well, although the preponderance here is not nearly so striking as in the series of patients on whom a biopsy was done.

AGE

The number of lesions in quinquennial groups is shown in chart 1, as is the number of additional lesions present on the same patient. The difference in the two gives the number of patients. The median age for males by patients is 63, the mean 62.80 and the coefficient of variation 20.60 ± 0.04 . For females the median age is 64, the mean 63.97 and the coefficient of variation 19.10 ± 0.04 . By lesions, the values for males are 64, 63.28, 20.57 ± 0.04 and for females 65, 64.44 and 18.94

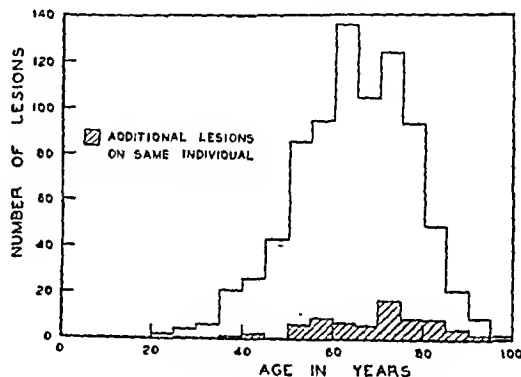


Chart 1.—Age distribution: 825 lesions.

± 0.04 respectively. The values were computed on the age when the patient was first seen. Four patients did not give their age. The incidence rises with age, as may be seen from chart 2, in which the frequency of lesions treated is expressed in terms of living 1930 Massachusetts population per quinquennial group.

SIZE

Size is expressed as the greatest surface diameter mentioned in the description of the tumor on admission to the hospital. Mention of the depth of the lesion was seldom made, owing to the difficulty of estimation, although the clinical importance of penetration beneath the skin is fully as great as that of lateral extent.

In table 2 we present a correlation of the size of the cancers when first seen with the type of previous treatment. Nearly two thirds of the lesions were 1 cm. or less in diameter. A few very large lesions were found. In table 3 the recurrences and fatal cases are correlated with the size of the lesion when first seen.

The rate of recurrence is discouragingly high—almost one in every eight lesions treated. There is naturally a fairly close correlation with the size of the lesion. Eleven per cent of the smaller lesions recurred, whereas 30 per cent of the larger lesions recurred. This three-

fold increase in recurrence with increasing size is dwarfed by the enormous increase in mortality. There is over a seventyfold increase from lesions under 1 cm. in diameter to those over 4 cm. in diameter. The carcinoma mortality of patients with lesions under 1 cm. in diameter was 0.4 per cent and of those with lesions over 4 cm. in diameter it was 35 per cent. While part of this enormous variation may be due to the inclusion of benign lesions, such as keratoses, among the smaller tumors, none the less there is startling evidence of the danger of delaying therapy in this group of tumors as well as in others.

METHODS OF TREATMENT

Of the 829 lesions, 778 were treated by radium alone, twenty-one by radium plus x-rays, fifteen by x-rays alone, six by radiation plus surgery and nine by surgery alone. Thus it is seen that the series is almost entirely composed of radium-treated lesions. X-rays were

danger with the surface application of radium thus being obviated of giving a dose adequate to heal the superficial portion of the lesion but inadequate to check the disease at its base. The radium therapy consisted mainly in the surface application of radon in 0.3 mm. of steel. The dosage was from 10 to 15 millicurie hours to one or more areas and was repeated if healing did not occur or suspicious areas persisted. For the larger lesions filters were occasionally used and radon seeds implanted. For six lesions greater than 2 cm. seeds were used, for three x-rays and for five combined x-rays and radium. The technic has been previously described by Daland.²

PREVIOUS TREATMENT

The treatment prior to the patient's entering the hospital was quite varied. To attempt to evaluate the effects of previous treatment, table 4 was made. When the cancer deaths are considered it seems that inade-

TABLE 1.—Distribution of Lesions

Age by Decades	Total		20-29		30-39		40-49		50-59		60-69		70-79		80-89		90-99	
	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀	♂	♀
Totals.....	418*	411	3	3	14	13	47	22	91	90	115	127	90	120	44	26	3	8
Upper part of face.....	143	105	..	2	6	3	18	7	38	20	29	31	34	32	14	9	2	1
	30.0%																	
Ear.....	8	2	..	..	..	..	..	..	..	..	4	..	3	2	1	..	..	..
	1.2%																	
Nose.....	123	141*	1	..	2	4	14	7	23	30	36	44	23	40	14	9	..	2
	32.5%																	
Skin of upper lip.....	7	17	..	..	1	..	1	..	4	5	1	7	..	3	..	2	..	..
	2.9%																	
Cheek †.....	102	110	2	1	3	5	12	8	15	18	27	39	22	28	11	6	..	6
	25.5%																	
Lower part of face.....	8	8	..	..	1	1	..	..	2	1	3	3	1	3	1	..	..	..
	1.9%																	
Neck.....	8	12	..	..	..	..	..	..	2	1	1	6	9	1	..	..	..	..
	2.4%																	
Scalp.....	6	3	..	..	..	..	1	..	1	2	1	1	1	..	2	..	..	..
	1.0%																	
Trunk.....	6	4	..	..	1	..	..	..	1	3	3	..	1	1	..	..	..	..
	1.2%																	
Extremities.....	7	3	..	..	..	..	1	..	2	..	..	1	3	2	..	..	1	..
	1.2%																	

* Two cases in which age was unknown.

† Cheek includes tumors poorly localized from the upper and the lower part of the face.

usually used only palliatively. The recent trend is toward more extensive use of x-rays. This trend is due to economic reasons in part—for roentgen therapy

quate initial irradiation is detrimental. This is due in part to the progress of the lesions, since inadequate therapy permitted recurrence, and in part to the less satisfactory response that is obtained by irradiation once a lesion has been treated and has recurred. These data are not entirely valid, however, for the majority of inadequately treated and palliatively treated lesions resulting in death are in the group previously irradiated.

TABLE 2.—Size When First Seen and Previous Treatment

Size, Cm.	0-1	1.1-2	2.1-3	3.1-4	4.1 or More	Not Stated	Total
Previous irradiation *.....	26 5.1%	10 5.6%	3 12.5%	3 25%	7 35%	8 9.5%	57 6.9%
Previous surgical intervention †.....	23 4.4%	9 5.1%	0 0%	1 8%	2 10%	6 7.1%	41 4.9%
Other previous treatment ‡.....	52 10.2%	29 16.4%	3 12.5%	2 17%	5 25%	9 10.7%	100 12.1%
No previous treatment.....	411 80.2%	129 72.9%	18 75%	6 50%	6 30%	61 72.6%	631 76.2%
All cases.....	512 61.8%	177 21.3%	24 2.9%	12 1.4%	20 2.4%	84 10.1%	829 100.0%

* Previous irradiation refers to roentgen irradiation.

† Previous surgical intervention includes electrodesiccation.

‡ Other previous treatment refers to salves, ultraviolet rays and the like.

has decreased in cost and increased in efficiency—and in part to the more even distribution of irradiation that can be obtained with the x-rays, owing to the distance of the source in the lesion treated, the all too frequent

RECURRENCES

Lesions were considered recurrent only if healing had previously occurred. Thirteen per cent of the lesions followed one year were known to recur. This does not include the thirty-two cases of persistent lesions which never healed. The recurrences per lesion at the various locations showed no definite predilection for any particular site. From table 3 it can be seen that recurrences are more apt to occur in the larger lesions. From table 5 it is seen that half the recurrences occurred within the first year. Recurrences after the third year are uncommon and are difficult to differentiate from a second independent tumor. Of seventy-one recurrences in which treatment was carried out there were forty-three, or 61 per cent, three year cures and twenty-eight,

2. Daland, E. M.: End Results of Radium Treatment of Skin Cancer. J. A. M. A. 86: 471 (Feb. 13) 1926.

or 40 per cent, five year cures. This percentage for five year cures of recurrences is low because the five year period has not elapsed for some of the patients. Of the twenty-seven deaths from cancer seven, or 26 per cent, occurred after primary healing. Recurrences were more frequent if there had been previous irradiation, owing to healing of the surface of the lesion without destruction of its lower portion.

END RESULTS

Table 5 gives the status of the lesions after treatment. The status after five years is shown in chart 3. In cases of cures and recurrences, the duration given is that after the last treatment. The status after recurrence is not definite enough in many cases, and for that reason the recurrence column is cumulative. The duration to death with disease is reckoned from the time

TABLE 3.—Size When First Seen, Recurrences and Carcinoma Deaths

Size, Cm.	0-1	1.1-2	2.1-3	3.1-4	4.1 or More	Not Stated	Total
All cases.....	512	177	24	12	20	84	829
	61.8%	21.3%	2.9%	1.4%	2.4%	10.1%	100.0%
Recurrences.....	55	24	4	3	6	10	102
	10.7%	13.6%	17%	25%	30%	11.9%	12.3%
Carcinoma deaths	2	7	4	1	7	5	27
	0.4%	4%	17%	8%	35%	6%	3.3%

TABLE 4.—Effect of Previous Treatment

	Number of Cases	3 Year Cures	5 Year Cures	Never Healed	Recurrences	Cutaneous Carcinoma Deaths Despite Adequate Therapy	Cutaneous Carcinoma Deaths
Previous irradiation.....	57	28 49%	25 44%	9 16%	13 23%	2 3.5%	9 16%
Previous surgical intervention.....	41	23 56%	21 51%	2 5%	5 12%	0 0%	2 5%
Other previous treatment.....	100	66 66%	53 53%	4 4%	9 9%	3 3%	5 5%
No previous treatment.....	631	353 55.9%	298 47.2%	15 2.4%	75 11.9%	7 1.1%	11 1.7%

of the first treatment at the Huntington Hospital. If a patient has two lesions and death from cancer occurs, the smaller lesion is counted as "dead of intercurrent disease, uncured."

When the formula

$$\frac{\text{cancer deaths} \times 100}{5 \text{ year cures} + (\text{uncured living and dead}) + \text{cancer deaths}}$$

is used, the five year mortality is 5 per cent. Known primary healing occurred in 89.3 per cent of all cases, or in 94.5 per cent of lesions followed for one year; these should not be considered cures, however. In spite of the large number of papers on cutaneous cancer, the standard of the five year or even three year cure is seldom used. The general practice seems to be to consider primary healing as a cure. This practice is irrational and gives misleading results. More than one fourth of the deaths from cutaneous cancer in the present series occurred after primary healing. Most writers state that from 95 to 98 per cent of cancers of the skin can be cured by irradiation and frequently do not mention their criteria of cure. Many times the percentage of cures is computed on

the number of cases followed, and no mention is made of the number of cases treated. One reason for the practices mentioned is that a large number of the patients die of intercurrent disease. Cutaneous cancer

TABLE 5.—Results of Lesions Treated 1928-1933

Year	Living and Well	Dead of Intercurrent Disease, Cured	Living, Uncured	Dead of Intercurrent Disease, Uncured	Living Status Unknown	Cutaneous Carcinoma Recurrence*	Lost	Total
0-1	663	29	23	1	8	9	51	829
1-2	569	57	17	2	9	13	69	828
2-3	520	85	11	5	8	18	108	828
3-4	470	119	10	5	6	20	81	828
4-5	433	140	7	5	4	24	86	828
5-6	399	163	3	6	4	26	87	822†
6-7	333	188	3	6	4	26	88	785
7-8	240	197	2	6	1	27	91	707
8-9	160	206	2	6	0	27	92	636
9-10	82	210	0	6	0	27	95	563
10-11	25	210	0	6	0	27	95	556

* Seven additional recurrences are counted only as carcinoma deaths. † Although it has been five years since any of these patients were first treated, duration of treatment is not counted except in failures. In some, treatment was prolonged.

TABLE 6.—Comparison with Results of Radiumhemmet

	Huntington Hospital	Radiumhemmet
3 year cures.....	66.7%	74.7%
5 year cures.....	48.1%	65.0%
Known recurrences.....	12.3%	4.8%
Known dead of carcinoma.....	3.3%	7.6%
Metastases.....	0.7%	2.5%

occurs mainly in the aged, who have a short life expectancy, and does not kill rapidly.² There were 57 per cent of three year and 48 per cent of five year cures of all the tumors treated. If the patients lost and dead of intercurrent disease are counted as having been cured, there would be 84 per cent five year cures. If lesions not followed five years are included, there would be 76 per cent five year cures.

In order to get some approximation of the expected deaths in the series under consideration, the five year

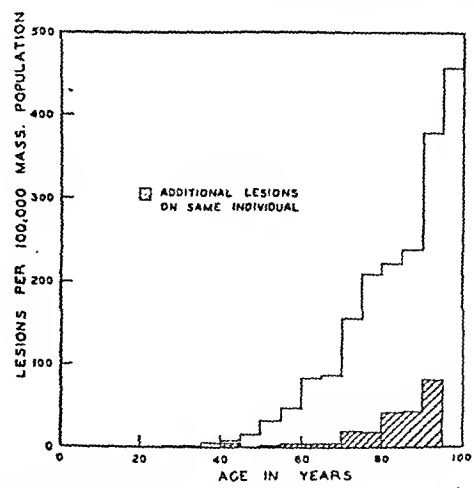


Chart 2.—Lesions treated per hundred thousand of population by age group in Massachusetts.

death expectancy by sex and quinquennial age groups was computed on the basis of deaths of the resident Massachusetts population. For the lesions under consideration there are 221 expected to end in death within a five year period, or about 25 per cent of the lesions treated should be unavailable for five year follow-up.

Magnusson's³ method of estimating cures we do not consider reliable. He has attempted to estimate the percentage of the three year cures by applying the percentage of recurrences in patients who survive the three year period to the number of patients lost (after primary healing) and those dead of intercurrent disease before the three year period is up. After deducting the percentage of "expected" recurrences in the patients lost and dead of intercurrent disease, had they survived, he counts the remainder as cured. To these are added the three year cures of the recurrences. This method of estimation does not appear reliable. It assumes that the dead, if alive, would have behaved the same as did those who survived. This point cannot be proved.

We prefer to compute the estimated cures by expressing the known cures as percentage of the expected survivals for the population in the series. No hypothetical cures are used. Since the group is a population with cancer, the expected survival would be less than a similar group of the random population, and thus our method gives a lower estimated percentage of cures.

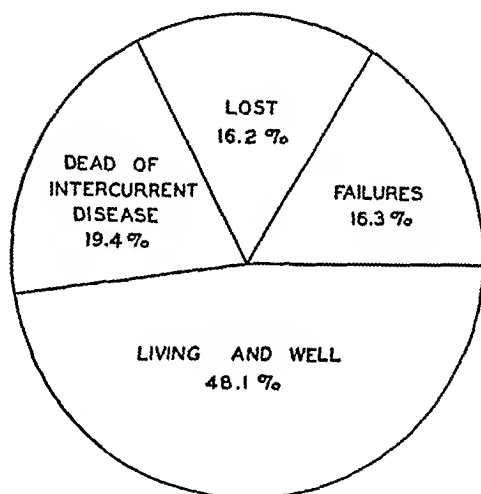


Chart 3.—Results after five years.

However, our method enables results of clinics in various parts of the world to be compared more fairly, although a large number of cases are necessary before it may be used. Our estimated three year cures are 67.4 per cent, and the estimated five year cures 65.5 per cent.

The excellent report of Magnusson³ in which each case is reported in detail has enabled us to compare our series with the cases at Radiumhemmet in which biopsies were not done. Table 6 gives the results of the present series and those from Radiumhemmet. The results in Stockholm appear to be more satisfactory than those here. This is due partly to his more complete follow-up. Of 747 cases without histologic classification, only thirty-three lesions were lost. The sizes were approximately in the same distribution as in our series. Since Magnusson reports the sizes in areas, we cannot compare accurately. If the tumors are assumed to have a circular area, 75 per cent of the tumors treated in Stockholm were less than 2.3 cm. in diameter, whereas 83 per cent of those in our series were 2 cm. or less in diameter. One reason for the higher proportion of deaths from radium-treated carcinoma at Radiumhemmet may be that there the metas-

tases are treated by radiation rather than by excision. Since our series includes only lesions not verified by biopsy those cases in which metastases were treated by surgical excision are automatically ruled out, and, as surgical treatment of local metastases is usually employed at the Huntington Hospital, accurate comparisons with treatment at Radiumhemmet cannot be made.

COMMENT

The series of tumors considered were a quite favorable group because of the method of their selection. Surely some of the tumors treated were not malignant, for no one is always correct in one's diagnosis. The results obtained are not as good as one would expect after reading the literature on the subject. The poor results can be attributed largely to the use of surface application of radon on many of the larger lesions, allowing primary healing to take place but not killing the tumor cells which are deeply situated. The percentage of recurrences in even the smaller lesions indicates inadequate initial treatment in many cases. The results are better than those previously reported from this hospital of histologically proved cutaneous malignant growths.¹ That the better results are due to the lack of biopsy alone is probably not correct. At Radiumhemmet of histologically verified tumors 76.4 per cent resulted in three year cures and of the tumors not examined by biopsy, 74.7 per cent. The treatment was similar in the two groups. This material emphasizes the danger of even small cancers of the skin.

SUMMARY AND CONCLUSIONS

1. Of 829 treated carcinomas of the skin not verified by biopsy, 84 per cent were followed for five years.
2. There were 57 per cent three year and 48 per cent five year cures of all the tumors treated. If the cases lost and dead of intercurrent disease are counted as cures, the five year cures would be 84 per cent; if they are entirely excluded, the percentage would be 76. Recurrences occurred in 13 per cent of cases showing primary healing followed one year or more.
3. Primary healing occurred in 94 per cent of the lesions followed for one year or more. More than one fourth of the deaths from cutaneous carcinoma occurred after primary healing. Primary healing should not be considered a criterion of cure.
4. Failures are due largely to the use of very light filtered radon applied to the surface in inadequate dosage. X-rays or radium used at a distance, as is the more general practice today, would have given greater depth doses and probably have given better results.

695 Huntington Avenue.

The Areas of Prevalence of Bubonic Plague.—From the fifteenth to seventeenth centuries, plague was with varying intensity habitually present in North Africa, Egypt, Western Arabia, Syria, Palestine, Asia Minor, Mesopotamia, Persia, probably India, China and Europe in general. From the middle of the seventeenth century, the area of prevalence began to diminish. In the eighteenth century there were only two serious outbreaks known, namely from 1703 to 1713, involving Turkey, Hungary, Austria, eastern Germany, Poland and Russia; and the second in Provence from 1720 to 1722. A hundred years later its area had shrunk to the easternmost part of Turkey in Europe and by 1841 it may be said that epidemic plague had disappeared from Europe, by 1843 it was no longer in Asia Minor, Syria or Palestine, and by 1844 had left Egypt. It has since then reappeared several times in Persia and the East but has not assumed an epidemic form to any extent.—Scott, H. Harold: *A History of Tropical Medicine*, Baltimore, Williams & Wilkins Company, 1939.

3. Magnusson, A. H. W.: *Skin Cancer: A Clinical Study with Special Reference to Radium Treatment*, Acta radiol., 1935, supp. 22, pp. 1-287.

Clinical Notes, Suggestions and New Instruments

HODGKIN'S DISEASE AND CARCINOMA OF THE COLON: MISTAKEN DIAGNOSIS OF CARCINOMA OF THE STOMACH

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It is unfortunate when, through an initial erroneous diagnosis of carcinoma, a dramatic cure is falsely reported. When the case is used as evidence for the efficacy of a new method of treatment and thus widely publicized, the harmful result is even more far reaching. It is quoted over and over again, gradually becomes accepted as a proved fact, and gives undeserved credit to that form of therapy.

Such a case is the one reported here. On this basis alone it is worthy of publication. In addition, it shows coexistence of Hodgkin's disease and adenocarcinoma of the colon in the same patient, which in itself is unusual.

A diagnosis of inoperable carcinoma of the stomach with regional metastases to lymph nodes was first made on this patient in 1928 through abdominal exploration and microscopic examination of a lymph node removed from the gastrocolic omentum. Following this she was treated in Frankfort, Germany, by Prof. Hans Holfelder and Prof. Bernard Fischer-Wasels. Holfelder administered roentgen therapy. Fischer-Wasels, on the theory that cancer grows only in an alkaline medium, produced in the patient a state of acidosis through inhalations of a gas mixture of oxygen and carbon dioxide, plus administration of hydrochloric acid and ultraviolet rays.

The patient responded remarkably well to these treatments, with symptomatic, physical and roentgenographic disappearance of any disease in the stomach. The case was thereupon reported as an instance of apparent cure of carcinoma of the stomach.

In 1930 Professor Fischer-Wasels published an extensive report of his work on the gas treatment of cancer.¹ In this publication the case was fully presented as an instance of apparent cure of an inoperable carcinoma of the stomach by means of gas inhalation. In his visit to this country the same year he gave a lecture entitled "The Gas Treatment of Cancer" in several medical centers. This case was again quoted in full detail as an instance of apparent cure. The lecture was published in the *Wisconsin Medical Journal*.²

Holfelder³ in 1931 reported the case as an inoperable carcinoma of the stomach apparently cured by roentgen therapy.

Dr. Willy Meyer gave a long, detailed and fully documented account of this case in 1932 in his paper "The Acidosis Treatment of Inoperable Malignant Tumors."⁴ He said:

"The report of the case mentioned above will likely also convince many readers that the sentence . . . that 'inoperability does not necessarily mean incurability' is probably correct, and that it was the acidotic treatment, in combination with x-ray therapy, which has cured a patient who suffered from an inoperable gastric malignant tumor, the undisputed presence of which had been proven by exploratory laparotomy at the hands of an expert and by microscopical examination of a metastatic node made at a laboratory known for its reliability and exactness."

This particular case was the only one referred to in detail in the paper, and added weight was given to it by the following editorial comment: "What Dr. Meyer has to say concerning the acidosis treatment of patients afflicted with inoperable malignant tumors appears to raise justified hope for at least some of these unfortunates, although of course this new chapter of medical therapy is still in its very infancy. Until now the largest majority of these patients were universally considered doomed. We hope the article will be read and reread. It is another lead and deserves serious consideration."

From the Memorial Hospital.

1. Fischer-Wasels, Bernard: Weiterer Ausbau der Gasbehandlung bösartiger Geschwülste. Frankfort, Ztschr. f. Path. 39: 48-253, 1930.

2. Fischer-Wasels, Bernard: The Gas Treatment of Cancer, Wisconsin M. J. 29: 131-138 (March) 1930.

3. Holfelder, Hans: Methodische Fortschritte der Röntgentherapie der Krebse des Verdauungskannals, Strahlentherapie 42: 497-503, 1931.

4. Meyer, Willy: The Acidosis Treatment of Inoperable Malignant Tumors, Am. J. Surg. 15: 112-119 (Jan.) 1932.

At the International Congress for Prevention of Cancer held at Madrid in 1933, Holfelder⁵ again presented the case as an instance of carcinoma of the stomach cured for four and one-half years. However, at this time he mentioned that a tumor of the tonsil had meanwhile developed.

In his book "Die Röntgentherapie," published in 1938, he⁶ quoted the case as one of inoperable carcinoma of the stomach, symptom free for nine years.

Meanwhile a tumor of the tonsil developed which was removed in 1932, and a diagnosis of Hodgkin's disease was made. Thereupon the original diagnosis on the abdominal lymph node was changed to Hodgkin's disease. Following this, the patient had repeated recurrences of enlarged nodes which responded to roentgen therapy, until she finally died in June 1939 of a general peritonitis caused by carcinoma of the hepatic flexure of the colon with perforation of the bowel wall. At autopsy Hodgkin's disease was found involving a lymph node in the right sub-maxillary region, but the stomach was absolutely normal.

Since the original reports of this case it has been quoted numerous times by other authors as an instance of apparent cure of an inoperable carcinoma of the stomach.⁷ The latest reference to it that has been noted appeared in June 1939. In this paper⁸ the case was described at length as an instance of an inoperable carcinoma of the stomach which had remained symptom free nine years. The statement was made that "this is the longest case of recovery that has been observed."

It is hoped that this report on the end result of this case may serve to rectify an error.

Following is a report of the case in detail:

REPORT OF CASE

Mrs. J. T., aged 53, began to have "heartburn" in 1928. She lost weight rapidly and became pale and weak. An x-ray examination made in June 1928 was interpreted as showing gastric ulcer. In July 1928 she began to lose her appetite and had frequent cramping in the stomach. Gastric analysis revealed no hydrochloric acid. On "internal treatment" she became worse. In August she went to Battle Creek, Mich. Here a gastric analysis revealed blood and again no hydrochloric acid. Roentgenograms of the stomach were interpreted as showing a cancer of the stomach which was considered inoperable. She had by that time lost 25 pounds (11 Kg.).

The patient desired operation and on October 24 entered the Mayo Clinic.

Examination there showed negative reports on analysis of the urine and on the Wassermann test of the blood. A blood count showed the hemoglobin content to be 58 per cent, red blood cells 3,890,000, white blood cells 10,600, differential count practically normal. Gastric analysis showed total acidity of 22 and no free hydrochloric acid. The x-ray examination revealed a carcinoma extending fairly high on the posterior wall and greater curvature of the stomach. The clinic's report of the operation was as follows:⁹

October 31 the abdominal cavity was explored by Dr. C. H. Mayo. There were many adhesions in the upper right quadrant of the abdomen secondary to an appendectomy and cholecystectomy done in 1916. The upper three fourths of the stomach, including all the posterior wall and part of the anterior wall, was involved with carcinoma; there was also involvement of the lymph nodes about the cardia just beneath the diaphragm and along the spine. A gland removed from the gastrocolic omentum for biopsy showed carcinoma. Since

5. Holfelder, Hans: Die Röntgentherapie der Krebse des Verdauungskannals unter besonderer Berücksichtigung der Frankfurter Methode der topographischen Konzentration und der zeitlichen Fraktionierung. Congreso Internacional de lucha científica y social contra el Cancer 1: 789-803, 1933.

6. Holfelder, Hans: Die Röntgentherapie, Leipzig, Georg Thieme, 1938, p. 265.

7. Pack, G. T.; Scharnagel, Isabel M.; Quimby, Edith H., and Loiseaux, M. C.: Palliative Irradiation of Gastric Cancer, Arch. Surg. 31: 881-896 (Dec.) 1935. Pack, G. T.: Irradiation of Inoperable Gastric Cancer, J. Clin. Oncol. 1: 111-115 (Feb.) 1936; Bestrahlung des inoperablen Magencarcinoms, Strahlentherapie 44: 443-456, 1936. Merritt, E. A.: Intra-Abdominal Malignancy with Special Reference to Gastric Cancer, Am. J. Roentgenol. 26: 324-331 (Sept.) 1936.

8. Fisher, G. E.: Some of the Technical Radiological Advances in Gastroenterology with Some Comments on Roentgen Therapy in Gastroenterology, Rev. Gastroenterol. 6: 160-178 (May-June) 1939.

9. Fischer-Wasels (footnotes 1 and 2). Holfelder (footnotes 3, 5 and 6). Meyer.

HODGKIN'S DISEASE—CRAVER AND SUNDERLAND,

JOUR. A. M.
APRIL 27, 1939

there was no obstruction a gastro-enterostomy was not done and the abdomen was closed as an exploration.

A letter later written by Dr. C. H. Mayo to Dr. Willy Meyer, and quoted by the latter,⁴ stated: "There was a tumor of the stomach which apparently involved the upper three fourths of the stomach, all the posterior wall and part of the anterior wall, with glandular involvement about the cardia just beneath the diaphragm. There was also glandular involvement along the lesser curvature and along the spine. A gland was removed from the gastrocolic omentum which apparently showed very cellular carcinoma. There was no obstruction and inasmuch as the tumor involved so much of the stomach no attempt was made to section the growth, and the wound was closed as an exploration. . . . While one might be mistaken about the clinical and pathologic diagnosis, we feel quite positive that the diagnosis is correct."

The patient was discharged from the Mayo Clinic November 11. She returned to New York with the expectation of living only a few months. Meanwhile her husband had learned through the newspapers of the experimental work of Prof. Fischer-Wasels. Therefore arrangements were made for the transference of the patient to Frankfurt, Germany.

She arrived in Frankfurt December 9 and placed herself under the care of Professors Fischer-Wasels and Holfelder. She was "in a bad cachectic stage, with heavy convulsion pains in the upper part of the abdomen and no appetite. There was a tumor the size of a child's head, palpable in the stomach region, the palpation of which caused heavy pains." Holfelder gave the patient high voltage roentgen therapy for about fifteen minutes once a week from Dec. 10, 1928, to Feb. 26, 1929.

Fischer-Wasels treated her by gas inhalations (pure oxygen plus 4.5 per cent carbon dioxide) for forty-five minutes three times a day. In addition she was given hydrochloric acid and acidolpepsin in increasing quantities and the whole body was treated by ultraviolet irradiation "for activation of mesenchyma and spleen."

Her condition improved rapidly. One month after the beginning of treatment the pains had disappeared, the vomiting stopped and the appetite increased. In March 1929 the tumor had shrunk to one third its former size, according to physical and x-ray examination. By May 1 the tumor could not be felt, the stomach appeared normal by x-ray examination and the patient had gained 22½ pounds (10 Kg.).

Two weeks thereafter she returned to New York and was observed by Dr. Gustav Bucky. She continued breathing the gas mixture until September 1929. She was seen by Professor Fischer-Wasels on September 19 during his visit to the United States and at that time was reported as being "in splendid health."

In February 1931 she returned to Germany and received some "prophylactic" roentgen treatments given by Professor Holfelder. She returned to New York after staying in Frankfurt for eight weeks, receiving treatments two or three times a week.

October 19 she was examined by Dr. Willy Meyer and was found to be in excellent physical condition. In 1932 a tumor of the left tonsil developed which was removed October 24 by Dr. Willy Meyer at the Lenox Hill Hospital. A slide of the specimen was examined microscopically by several prominent pathologists, and a diagnosis of Hodgkin's disease was made. Dr. W. C. MacCarty, pathologist at the Mayo Clinic, believed that, in view of the patient's course and the very small specimen that he had originally the opportunity of examining, the diagnosis made on the abdominal lymph node should be changed to Hodgkin's disease.

The patient received two roentgen treatments to the neck at Lenox Hill Hospital and was then referred by Dr. Willy Meyer to Dr. Francis Carter Wood November 21. From this time she was treated at St. Luke's Hospital until January 1939. In November 1932 she received six roentgen treatments totaling 2,200 roentgens to the tonsillar region. At that time her general physical condition was good. There was no tumor in the throat or neck and x-ray films of the stomach showed no abnormality.

During 1933 she received nine roentgen treatments amounting to 3,000 roentgens, mostly over the left tonsil.

During the year 1934 she was seen frequently, felt well and had no complaints. In that year she was given one roentgen treatment over the stomach posteriorly.

April 21, 1936, a swelling of the right tonsil was noted. Roentgen treatments totaling 1,800 roentgens caused complete regression. In September she complained of vague abdominal discomfort. She was given several abdominal treatments; an additional 600 roentgens in the tonsillar region. Roentgenograms taken at this time showed the stomach to be normal in size, shape and position, with normal peristalsis.

Following this her course was uneventful until 1938, when she complained of abdominal pain. Examination revealed a palpable mass along the lower border of the stomach, and abdominal nodes could be felt. Further roentgen therapy was given. During the course of the year she received seventeen treatments of 300 roentgens each to various abdominal ports.

During the summer she gained in weight, felt somewhat better but still was not well and complained of pressure over the sternum.

Early in January 1939 she had severe abdominal pain, and the abdominal mass was found to be larger. X-ray examinations of the abdomen was said to have revealed no lesion. Cholecystograms were negative. She was given three treatments of 200 roentgens each and did not reappear at St. Luke's Hospital.

She then went to Boston. She was given a transfusion at the New England Sanitarium April 4 and on April 8 was admitted to the New England Deaconess Hospital under the care of Dr. Joseph Marks. At that time she was suffering from severe colicky pains in the right lower quadrant of the abdomen. Examination showed a mass extending from the costal margin almost to the level of the iliac crest. The greater part of this mass was to the right of the midline, and there was marked tenderness to pressure along the lower margin. There was no peripheral edema. There was no regional lymphadenopathy except for a soft mass in the right submaxillary region. From April 10 to April 27 she was given a course of roentgen therapy. A total of 1,100 roentgens was delivered to each of four anterior abdominal parts. The abdominal mass decreased somewhat in size. The tenderness diminished but intermittent pains continued. Six hundred roentgens was also given to the right submaxillary mass with resultant complete regression. She was again given a transfusion May 6. During her stay at the New England Deaconess Hospital her temperature varied from 99 to 100 F. May 10 she had a chill with a temperature of 104 F. The temperature then subsided to 100, where it remained until her discharge May 12. The white blood cells varied from 19,750 to 47,400; hemoglobin from 55 to 83 per cent; red blood cells from 3,260,000 to 4,270,000; the differential count showed a preponderance of polymorphonuclear leukocytes in all instances.

She returned to New York, where she remained under the care of her private physician until June 3, 1939, when she was admitted to Memorial Hospital.

On admission she complained of abdominal pain. She was emaciated, markedly pale and weak and appeared to be moribund. The right upper quadrant of the abdomen was filled by a hard, fixed, rather poorly outlined mass which extended from the costal margin to the level of the iliac crest. There was slight tenderness to pressure over the lower portion of the mass. There was marked pigmentation of the skin of the abdomen and the two upper abdominal surgical scars. There was also a small hard mass, about 2 cm. in diameter, in the right submaxillary region. The pulse was rapid and weak and the blood pressure could not be obtained. The temperature was subnormal and remained so. There was also pitting edema of the feet, legs and lower part of the back. Laboratory examination showed hemoglobin 60 per cent, red blood cells 3,180,000, white blood cells 35,000 with polymorphonuclear leukocytes 92 per cent, monocytes 3 per cent, and leukocytes 5 per cent.

Following admission the patient became rapidly weaker. She vomited frequently, and in spite of strongly supportive treatment, stimulants and transfusion she died June 7.

Postmortem examination revealed a large carcinoma of the hepatic flexure of the colon, which had caused perforation of the bowel wall. There were gangrene of the adjacent bowel wall, subdiaphragmatic and liver abscesses and generalized peritonitis. Microscopic examination showed the tumor to be an adenocarcinoma with metastases to the regional nodes. The stomach showed no abnormality. There was no scarring of the mucosal or serosal surface, and there was no neighboring lymphadenopathy.

The only evidence of regional lymphadenopathy was in the right submaxillary region, where an enlarged lymph node was found. Microscopically this was diagnosed as reticulum cell sarcoma, but in view of the past data it was thought to be Hodgkin's disease.

Other incidental observations were thyroid adenoma, bilateral pulmonary congestion, fibrinous pleuritis with effusion, right, fatty liver, acute splenitis, chronic interstitial fibrosing pancreatitis, parenchymatous renal degeneration and arteriosclerosis.

444 East Sixty-Eighth Street.

POISONING BY FALSE MOREL (GYROMITRA ESCULENTA) REPORT OF A FATAL CASE

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Because of the popular interest in the use of mushrooms and other fungi as food, this case is believed to be worthy of a brief report.

Mrs. L. H., an Indian woman aged 69, ate some fungi, May 11, 1935, which proved to be false morels (*Gyromitra esculenta*). I saw her at 2 a. m. on the 12th. For some hours she had been vomiting and had had severe pains in the chest and the legs. There was no diarrhea. Her temperature was normal and her pulse was 72 beats a minute. The abdomen was soft and the rest of the examination was not remarkable. The vomiting and general distress continued for two days. In the evening of the 13th she had a convulsion and after that she was in coma. In the forenoon of the 15th her temperature was found to be 101.5 F. and her pulse was 120 beats a minute. Morphine sulfate was given several times to control the pain. Atropine sulfate was also given. The rest of the treatment consisted in washing the stomach, in colonic flushing and later in the use of caffeine with sodium benzoate. She died at 3 a. m. on May 16.

Several others ate of the false morels—the patient's husband aged about 80, the daughter aged 38, the son-in-law aged 61, two children aged 4 and 2 years and two young men—in unknown amounts. Of these, only the daughter suffered any ill effects. She vomited to a considerable extent but had practically recovered by the next day. The son-in-law, a white man, scoffed at the idea of poisoning, saying that he had been eating these plants "for twenty years" without any bad effects. Dr. L. E. Wehmeyer,¹ of the Botanical Department of the University of Michigan, who confirmed my determination of the species, stated that he had eaten them in the western part of this country.

This variability in toxic properties has long been recognized. Thus Dr. O. E. Fischer, in a chapter on poisoning in Kauffman's² work, mentions this, saying that, although this fungus is eaten by many without apparent harm, there are on record a large number of cases of poisoning, many of them fatal. Patterson and Charles³ do not class it as edible for the foregoing reason. On the other hand, Marshall⁴ in a popular book not only calls these fungi edible but gives special directions for preparing them, which include boiling for fifteen minutes followed by two rinsings in boiling water. Fischer² states that the poison is very soluble in hot water, so that parboiling the fungi and rinsing them may render them safe. According to Dr. Wehmeyer,¹ it has been thought that cooking with vinegar

might render the poison innocuous. In the instance reported here, they were fried after having been parboiled, but how thoroughly rinsing was done is unknown.

The plant is called also the lorchel and bears the synonym *Helvella esculenta*. It consists of a bay-red cap 2 inches (5 cm.) or more in width attached in several places to a lighter colored stem of about the same length. The cap is irregular in form, scarcely any two specimens being alike, and is lacking in symmetry. The general form reminds one of a mass of dough which has overrisen and has flowed out of its container. The surface is covered with folds which may well be likened to the convolutions of the brain. The "true" morels (*Morchella* sp.), on the other hand, are buff yellow to brown or darker, and the caps are more or less uniform, being conical or ovoid, while their surfaces have a more spongy appearance. Actual confusion between these kinds can hardly occur and, paradoxically, the principal danger seems to be that a considerable number of persons have eaten the false morel with impunity. The specific name *esculenta*, which is Latin for edible, is certainly misleading.

Reports of poisoning by "mushrooms" are seen in the daily press from time to time. Of those occurring in the spring of the year, at least in the Northern states, it is quite likely that some are due to the false morel. It is highly desirable that all such cases be investigated botanically.

SUMMARY

Of several persons who ate false morels (*Gyromitra esculenta*), two became ill with vomiting and one died after a convulsion followed by coma. The toxic properties of this plant are variable, but its consumption should be regarded as unsafe.

CHANGES IN THE ELECTRO-ENCEPHALOGRAM FROM LIGATION OF THE CAROTID ARTERIES IN THE CASE OF INTRACRANIAL SACULAR ANEURYSM

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The electro-encephalogram is becoming recognized as a sensitive indicator of the status of the cerebral cortex. The most prominent feature characterizing the normal electro-encephalogram is the alpha rhythm, which has a frequency averaging about ten cycles per second. When the function of the cerebral cortex is suppressed, regardless of the cause, the associated electrical potentials become less rhythmic and are irregular in shape and amplitude, and the frequency decreases and becomes irregular, ranging from one to seven cycles per second. This random slow frequency was termed by Walter¹ the "delta" wave. It may be confined to a local region in the vicinity of a tumor or it may be generalized as a result of some diffuse brain involvement.

The present discussion concerns the study of the electro-encephalographic records in the case of ligation of the large vessels of the neck as a therapeutic measure for an intracranial sacular aneurysm. The diagnosis and surgical treatment was reported by one of us (Walsh) and Drs. Horton and Adson² at a staff meeting of the Mayo Clinic. We shall deal here only with the electro-encephalographic observations.

Other investigators³ ligated cerebral vessels in animals and observed various degrees of suppression of the function of the cerebral cortex. To our knowledge there has been no previous report on similar observations in man.

REPORT OF CASE

A white woman aged 34, a registered nurse, began to have left-sided headaches in 1917, at the age of 12 years. In 1930,

1. Walter, W. G.: The Location of Cerebral Tumors by Electro-Encephalography. *Lancet* 2: 305-308 (Aug. 8) 1936.

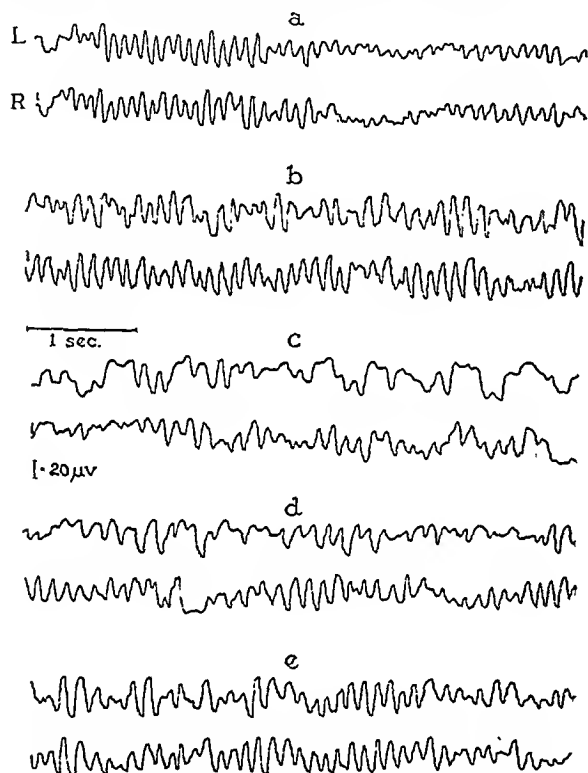
2. Walsh, M. N.; Horton, E. T., and Adson, A. W.: Diagnosis and Surgical Treatment of Intracranial Sacular Aneurysm. *Proc. Staff Meet., Mayo Clin.*, to be published.

3. Bartley, S. H., and Bishop, G. H.: Cortical Response to Stimulation of the Optic Nerve. *Proc. Soc. Exper. Biol. & Med.* 29: 775-777 (March) 1932. Simpson, H. N., and Derbyshire, A. J.: Electrical Activity of the Motor Cortex During Cerebral Anemia. *Am. J. Physiol.* 109: 99 (July) 1934. Bremer, F., and Thomas, J.: Action de l'anoxémie, de l'hypertension et de l'épilepsie sur l'activité électrique du cortex cérébral. *Compt. rend. Soc. de biol.* 122: 1256-1261, 1936.

1. Wehmeyer, L. E.: Personal communication to the author.
2. Fischer, O. E.: Mushroom Poisoning, in Kauffman, C. H.: The Agaricaceae of Michigan. Publication 26, Biology Series 5. Michigan Geological and Biological Survey, 1918.
3. Patterson, Flora W., and Charles, Vera K.: Mushrooms and Other Common Fungi. Bulletin 175, United States Department of Agriculture, April 1915.
4. Marshall, Nina L.: The Mushroom Book. New York, Doubleday, Page & Co., 1913.

during a headache, she complained of difficulty in speaking. In February 1935 she suddenly experienced a severe pain in the left side of the head with the onset of rigidity of the neck and then consciousness was lost. Six days later a right hemiparesis appeared. A spinal puncture was performed at this time; the cerebrospinal fluid was very bloody. The patient remained unconscious for four weeks. On recovering consciousness, she was found to have considerable aphasia and agraphia. The right hemiparesis persisted for five weeks. The aphasia has subsequently gradually improved. Since this episode headaches have occurred about four times weekly.

The patient first came to the Mayo Clinic Oct. 10, 1938. The results of the general medical examination were essentially negative. The neurologic examination revealed a slight motor type of aphasia with some exaggeration in the tendon reflexes of the right arm and leg and diminution of speed



Electro-encephalograms of a patient with intracranial saccular aneurysm before and after ligation of the left carotid arteries. Upper tracing, left parietal-occipital; lower tracing, right parietal-occipital; *a*, taken Feb. 27, 1939; *b*, taken August 3, six days before operation; *c*, August 12, three days after operation; *d*, August 15, six days after operation; *e*, August 18, nine days after operation.

in the right hand. The patient also complained of a swishing bruit, synchronous with the pulse, in the left side of the head.

The patient returned to the clinic Feb. 25, 1939, with a history that one week before she had experienced a sudden severe pain in the left side of the head which had persisted in increasing severity for three days. At the end of that time increased weakness of the right arm, increased difficulty in speech and some neck rigidity had occurred. Three days later the strength in the right arm had improved and the speech was better.

On examination at the clinic a significant difference from the previous examination could not be noted. Pressure on the right internal carotid artery could not be made for longer than three minutes without increasing the pain in the head. The impression was that of a saccular aneurysm either of the anterior part of the circle of Willis on the left or near the junction of the left internal carotid with the circle of Willis. The electro-encephalogram taken during this observation period was normal. The alpha rhythm was similar on the two sides of the head (tracing *a*). The patient was advised to make digital pressure on the left carotid artery, beginning with five minutes three times daily and gradually increasing until she could tolerate forty-five minutes of carotid compression.

July 26, 1939, the patient returned to the clinic stating that the pain in the left side of her head had increased to such an extent that it made her life miserable. The results of the neurologic examination were essentially the same. Pressure on the left carotid artery produced complete relief of the headaches and carotid compression could be maintained for forty-five minutes.

Electro-encephalographic tracings taken August 3 had changed slightly from the previous ones (tracing *b*). The alpha rhythm was somewhat less regular on the left as compared to the right. The average frequency on the left was about eight cycles per second, whereas on the right it was near ten. Some delta activity was now present. The slight abnormality of the electro-encephalogram from the left side of the head might be explained on the basis of a mild suppression of the function of the cerebral cortex as a result of the repeated compressions of the internal carotid artery which bring about a transitory anemia of the left hemisphere. One would like to know whether the previous episodes of aphasia might have shown changes had electro-encephalograms been taken at the time.

August 9, on the advice of one of us (Walsh) and Dr. Horton, Dr. Adson ligated the left common, internal and external carotid arteries. The patient's convalescence was satisfactory following the operation and she has had no pain whatever since that time.

Three days after operation a third electro-encephalographic record was made and a marked change was noted (tracing *c*). The alpha frequency on the left was reduced considerably over the entire hemisphere and it was replaced by the slow, irregular, random delta waves which had a frequency of 1.5 to six cycles per second. The alpha rhythm from the right hemisphere was not appreciably affected though a few delta waves were present. This is suggestive of a suppression of the function of the cerebral cortex and in this case is undoubtedly associated with the diminution in blood supply of the left cerebral hemisphere as a result of carotid ligation. One other feature of the electro-encephalogram was noted. Throughout the record there was a very slow wave of one cycle in two to three seconds which apparently arose from all the areas of the cerebrum. This type of wave has been noted in conditions in which an acute impairment of the activity of the brain was present. It has been observed in the last stages of neoplastic growths in which the lesion has proved to be extensive and has caused considerable increase of the intracranial pressure. However, no localizing value has been attached to the presence of this wave. In the present case the only significance associated with it is the suggestion that the ligation of the vessels has produced an acute condition within the cerebrum.

Two more recordings were made six and nine days after operation (tracings *d* and *e*). The first showed considerable improvement of the electro-encephalogram. The delta activity had diminished noticeably on the left side with a subsequent return of the alpha rhythm. The very slow wave had vanished. However, there was still some discrepancy between the two hemispheres. Delta waves were still slightly more abundant on the left and the alpha rhythm averaged about two cycles per second less than on the right. The last recording showed still further improvement, but the similarity of the two sides had not yet returned to that of the first recording.

COMMENT

The question has frequently arisen Does the decrease of cerebral circulation resulting from ligation of one common carotid artery in the neck produce irreversible damage to the brain? The observations would suggest the contrary. Not only were the abnormal changes in this case transitory but also a return to the normal state was rather rapid, a condition which is indeed encouraging. It is to be expected, however, that more severe and permanent damage to the brain will result when the collateral circulation through the circle of Willis is inadequate. This emphasizes the necessity for careful study by means of digital compression of the carotid artery to determine as well as possible the adequacy of the collateral circulation through the circle of Willis before undertaking ligation of the carotid artery.

POTASSIUM SALTS IN HAY FEVER

HYMAN MILLER, M.D., AND GEORGE PINESS, M.D., LOS ANGELES

In December 1938 Bloom¹ reported marked success in the treatment of hay fever by the oral administration of potassium salts. Reporting twenty-nine cases of hay fever, Bloom stated that the administration of 5 grains (0.32 Gm.) of potassium chloride three or four times a day in a glass of water gave in all twenty-nine "a degree of relief which was estimated as over 50 per cent, and in most of them approximately 100 per cent." A second report confirming these results was published by Bloom and Grauman² in July 1939. Meanwhile Abt³ reported comparable results in children and Engelscher⁴ in a communication to THE JOURNAL reported practically complete failure.

In view of the simplicity of the treatment involved and the importance of hay fever as a disabling affliction, it was thought advisable to repeat the work of Bloom. The following account, therefore, presents our efforts impartially to evaluate the results of the treatment of hay fever patients with potassium salts administered according to his method. The patients so treated gave histories characteristic of hay fever, and the appearance of the mucous membranes of their eyes, noses and throats was consistent with that diagnosis. In addition, all gave positive cutaneous reactions to several substances known to produce hay fever, all showed eosinophils in their nasal smears, and many showed an increased eosinophil count in the blood. These patients differed from the other hay fever patients treated during the same period only in that specific treatment based on the results of cutaneous testing had not given satisfactory relief of symptoms.

The patients treated with potassium salts may be divided into two groups. The first group was treated during January 1939, at a time when there was practically no pollen in the air in this vicinity. The second group was treated in the period from June to November 1939, when there was considerable pollen in the air, thus abiding by the rule that the evaluation of any treatment of hay fever should not be made at a time when the causative factors may naturally disappear from the environment and thus give spontaneous relief.

Adhering to the dosage recommended by Bloom, a solution was prepared containing $5\frac{1}{10}$ grains (0.33 Gm.) of potassium chloride to the teaspoonful. This solution was colored and flavored with a palatable orange syrup and marked solution A. A second solution containing 4 grains (0.26 Gm.) of sodium chloride (equimolar to the potassium chloride solution) similarly colored and flavored was marked solution B. The contents of each group of bottles remained unknown to ourselves and to the patients from the beginning of the experiment to its end. These were the only solutions given to the patients in the first group; that is, to those treated during January 1939. In this group there were nine patients. Each took at least 4 ounces (120 cc.) of solution A, followed on the next week by a similar amount of solution B, in doses of one teaspoonful in a glass of water three or four times a day. Not one patient reported relief from either solution.

After personal consultation with Dr. Bloom it was discovered that at times he had found it necessary to give a larger dose of potassium chloride. It was decided to duplicate his methods as exactly as possible. Therefore a third solution was prepared containing 10 grains (0.65 Gm.) of potassium chloride to the teaspoonful, which was bottled and labeled solution C. As further controls a solution of potassium bicarbonate $13\frac{1}{10}$ grains (0.9 Gm.) to the teaspoonful, labeled solution D, and a solution of sodium chloride 8 grains (0.5 Gm.), plus quinine $\frac{1}{100}$ grain (1.3 mg.) to make a flavor similar to that of solution C was prepared and labeled solution E. Solutions C, D and E were otherwise not sweetened or flavored. Solution C was dispensed

in the same manner as had been solutions A and B, but over the period from August to October 1939, to thirty-one patients with hay fever symptoms which had not responded to the usual treatment. The results may be summarized as follows: One patient reported that headaches accompanying coryza and nasal obstruction were relieved by solution C, but on the administration of solutions D and E the same report was obtained. One patient reported complete relief from solution C and solution D and also from solution E. No other patient obtained relief from any of the solutions. Only two patients asked for more of the solutions, namely the two just mentioned, who reported relief regardless of which solution was administered. One patient who had not obtained relief became discouraged, left our care, visited another physician who gave him potassium chloride, and reported back triumphantly that he had been relieved by the "new medicine," being unaware that he had already received potassium chloride at our hands without relief.

In passing it may be noted that several patients with urticaria and migraine treated with potassium chloride reported no relief and that several patients with bronchial asthma reported no aggravation of symptoms on taking the salt.

SUMMARY

The administration of potassium chloride according to the method of Bloom gave no relief to thirty-eight of forty hay fever patients, the remaining two patients obtaining as good relief from placebos.

672 South Westlake Avenue.

Special Article

THE PHARMACOPEIA AND THE
PHYSICIAN

THE THERAPY OF PRURITUS

ARTHUR W. STILLIANS, M.D.

CHICAGO

This is one of the second series of articles written by eminent authorities for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopoeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—ED.

Technically, pruritus means itching without cutaneous manifestations of disease, but this article will hold to the wider use of the word as synonymous with itching, regardless of the presence or absence of visible alterations in the skin. Itching is so common a sensation as to be considered physiologic. Each one of us itches frequently and by the commonest of reflexes scratches or rubs, consciously or unconsciously. Slight itching is thereby allayed. Only when the sensation is not thus allayed but persists and becomes annoying is it considered pathologic. Little is known of its pathogenesis. The neurologists tell us that itching is a subpain sensation, a milder impulse traveling over the nerve pathway that transmits pain. The impulse must originate in the epidermis, however, for deeper irritations do not cause it and itching does not occur after the epidermis is removed. Whether itching is caused by any particular subpain impulse depends on the threshold of susceptibility, under the control of the vegetative nervous system, in turn influenced by the metabolism of cutaneous cells and nerve endings, the complex of endocrine products and the mental state of the patient. A strong initial impulse, less than sufficient to cause pain, may, with a high threshold

1. Bloom, Benson: Use of Potassium Salts in Hay Fever, J. A. M. A. 111: 2281 (Dec. 17) 1938.

2. Bloom, Benson, and Grauman, S. J.: Potassium in Allergy, South-west Med. 23: 205 (July) 1939.

3. Abt, A. F.: Note on Oral Administration of Potassium Chloride in the Treatment of Hay Fever, Nasal Allergy, Asthma and Sinusitis, Am. J. M. Sc. 195: 229 (Aug.) 1939.

4. Engelscher, D. L.: Potassium Chloride in Allergy, J. A. M. A. 113: 961 (Sept. 2) 1939.

against irritation, cause little itching, while a slighter impulse with a low threshold may result in much distress.

Many years ago Kaposi explained the importance of scratching as a means of perpetuating and intensifying itching. Instead of being allayed by scratching, the itching soon returns with greater intensity, the patient responds with more vigorous scratching and this in turn increases the itching. Sulzberger and Wolf¹ in a recent article add to this illustration the presence in the blood of a toxin causing the itching, which, by the increase of circulation resulting from the scratching, is brought to the skin in greater amount and adds to the vicious circle, which must be broken if the distress is to be allayed. Fortunately, a break in any part of the circle, as in an electric circuit, may stop the current. If the cause can be removed, the cellular metabolism altered or the threshold raised in any other way, the itching may cease.

Discovery and removal of the cause is the first principle of treatment. This may take time. Even after the discovery of the cause, removal may be difficult or impossible—it may be a carcinoma of the liver, for instance—and something must be done to relieve distress. After the cause has been removed, as in scabies, the itching may continue because the "skin memory," so named by Jacquet, has lowered the threshold of susceptibility, and itching results from slight irritations not noticed by normal skin. This skin memory tends to continue itching in every case of pruritus after the real cause of the attack has ceased to act.

As may be inferred from the frequency of its occurrence, pruritus is caused in innumerable ways. The list that follows is incomplete, no doubt, and a number of these conditions may interact, so that the possibilities run into astronomical figures.

ETIOLOGY

Local Causes.—1. Animal parasites, such as the itch mites and other insects that live on the skin, the hairs of certain caterpillars, the bites of insects, the sting of jelly fish and other aquatic animals, pinworms and Trichomonas.

2. Vegetable irritants such as itch powder, nettles, which are directly irritant, and the myriad other vegetable substances—fungi, plant juices, woods, pollen, and drugs—which become irritants after the patient's skin becomes sensitized to them.

3. Mechanical irritants such as scratching and rubbing, the rubbing of clothing and the effect of wind.

4. Thermal irritants; cold more commonly than heat, yet cooling is one of the chief aids in alleviation of itching, lessening local congestion and substituting the sensation of coolness for that of itching. This is another illustration of the complexity of the problem. Whether the abnormal reaction to cold or heat is due to a real allergy or to a form of overactivity of the vegetative nervous system is still being debated.

5. Chemical irritants. Simple chemicals, mercurials, sulfur and nickel may be guilty when the skin is sensitized. Of course the causes listed under 1, 2, 6 and 8 and possibly 7 and 9 are basically chemical irritants.

6. Local secretions. Sweat left in the folds of the skin, where it degenerates, alkaline or too acid urine, diabetic urine, that containing calcium or oxalate crystals, vaginal discharges, preputial secretion and fecal

discharges often cause itching. Urethritis, cystitis and endometritis act partly at least in this way.

7. Actinic action. This depends on the degree of reaction. There may be no itching until scaling occurs and the skin relaxes.

8. Retention in the skin of abnormal products of metabolism, as the nitrogen retention demonstrated by Urbach in kidney disease.

9. Disease. Lymphoblastomas, Hodgkin's disease, leukemia and granuloma fungoides act partly by abnormal local growths, partly by toxin formation.

General Causes.—1. Reflex irritations, such as lymphoblastomas and other tumors, by pressure on the viscera. It may be that the itching due to colitis, constipation and endometritis is partly due to reflex nerve irritation.

2. Deficient nutrition, anemia and vitamin deficiencies.

3. Toxemia, such as liver disease, especially obstructive jaundice, cholecystitis without jaundice, cirrhosis, carcinoma; gastrointestinal disease, constipation and pregnancy.

4. Endocrine disturbances, such as diabetes, exophthalmic goiter and the menopause.

5. Sensitization to bacterial toxins, as in focal infections, to fungi and to foods, drugs, inhalants and innumerable external contacts.

6. Foods and drugs that exert a direct effect. Alcohol increases cutaneous circulation, caffeine increases sensory receptivity; the patient becomes conscious of itching. Morphine and related drugs cause itching in some way not well understood.

7. Dermatoses of unknown or little understood origin, lichen planus, eczemas, dermatitis herpetiformis, lichen urticatus, urticaria.

8. Nervous disease: organic, as tabes, dementia paralytica; functional, as hysteria, masturbation, fear or other mental disturbance, autosuggestion or heterosuggestion.

TREATMENT

If the cause can be removed, well and good, but this is not cure. Skin memory may maintain considerable pruritus and other causes may have entered during the period of treatment, as in the treatment of scabies, when the patient, to allay the itching persisting by skin memory after the death of the mites, applies the sulfur ointment again and acquires a sulfur dermatitis. If there is delay in removing the cause, the attempt to break the circuit at some other point must be made.

Suppression of scratching and rubbing is of great importance, perhaps next to the effort to remove the

PRESCRIPTION 1.—Dusting Powder

	Gm.
R ₂ Boric acid	12
Talcum	
Zinc stearate	To make 120

cause of the disorder. Our duty in this effort to suppress scratching does not end when we tell the adult patient to stop it or put a splint on the baby's arm. Soothing applications must be used to lessen the itching and the urge to scratch. The adult is thus given something to do to supplant his too steady occupation with scratching. The explanation of the evil effect of rubbing and scratching helps him to restrain himself.

Cooling the skin, whether or not visible congestion is present, is one of the most efficacious and promptest

1. Sulzberger, M. B., and Wolf, Jack: Pruritus and Its Treatment, M. Clin. North America 19: 971 (Nov.) 1935.

means of relief. Cool wet compresses of saturated boric acid solution, thin and not covered, and changed whenever the compress becomes warm, are the simplest form. The nurse can apply them while waiting for the doctor with no danger of harm. If oozing is present, from 6 to 10 per cent aluminum subacetate solution may be more helpful because it is astringent. When there is no accompanying inflammation of the skin, hot water, as hot as can be borne, is sometimes efficacious for limited areas, and the effect can be increased by the addition of sodium bicarbonate up to saturation. After a session of cool wet dressings or of hot water, the skin should not be dried but the water allowed to evaporate and the part powdered with talcum, which continues the cooling process.

PREScription 2.—*Evaporating Lotion*

	Gm. or Cc.
R Salicylic acid	0.45
Alcohol, 50 per cent.....	90.00

Evaporating lotions are another form of cooling preparations. They can be used whenever the surface is not broken and are especially useful in the axillae and under the breast but are too apt to be irritating about the genitalia and anus.

Prescription 2 is antiseptic and fungistatic as well as cooling and antipruritic. It is especially useful for the itching of miliaria.

PREScription 3.—*Calamine Lotion*

	Gm. or Cc.
R Calamine	
Zinc oxide	āā 8
Lime water.....	To make 120

Calamine lotion is perhaps the most widely used preparation to relieve itching.

If this is to be used on unbroken skin, equal parts of lime water and rose water make it less liable to cake and somewhat less drying. If the skin is too dry to accept this, glycerin may be added or calamine liniment may be used.

PREScription 4.—*Calamine Liniment*

	Gm. or Cc.
R Calamine	
Zinc oxide	āā 8
Lime water	
Olive oil	āā 60

Rose water ointment is a good cooling agent for skins that need oil. Ten per cent boric acid powder makes it more soothing. Menthol has a cooling effect after the first slight stinging sensation. It should seldom be

PREScription 5.—*Menthol and Rose Water Ointment*

	Gm. or Cc.
R Menthol	0.15
Boric acid	3.0
Rose water ointment.....	To make 30.0

used in strong concentration, for it may irritate. From 0.25 to 0.5 per cent is often sufficient. It must not be used over a large surface in older patients because of the danger of chilling, and of course it should not be used close to the eyes. Not only do these applications

give the patient a substitute for his preoccupation with scratching but the cooling sensation acts as a substitute for the itching sensation.

The cooling effect of menthol and of rose water ointment may be combined as in prescription 5.

Zinc paste is a good preparation for skins that cannot stand soft ointments yet are uncomfortably dry when calamine lotion is used. For those who need a little more softening, zinc oxide ointment, containing only 20 per cent of powder, is better. Such ointments are to be applied very thinly when drying and cooling are desired, thickly when it is advisable to protect from the air and to macerate. The patient should always be instructed to use oil for the removal of the ointment, if this must be done, and to be as gentle as possible. It is better to leave a little of the ointment or paste than to employ any rubbing. The temptation to do a thorough job as an excuse for getting in a good rub is great.

In hairy areas in the folds of the body soft zinc paste may do better work. This hardens if left longer than

PREScription 6.—*Soft Zinc Paste*

	Gm. or Cc.
R Zinc oxide	
Calcium carbonate	āā 6
Lime water	
Olive oil	āā 9

twelve hours, so that it must be removed and replaced. Tar, phenol, menthol or resorcinol may be added but not salicylic or benzoic acid, which may break the emulsion.

Protection from the air may be given by films such as tragacanth lotion. Applied in a thin layer, this dries quickly and leaves a thin film.

PREScription 7.—*Tragacanth Lotion*

	Gm. or Cc.
R Tragacanth	5
Glycerin	2
Water	To make 100

Still greater protection is obtained with Unna zinc oxide jelly. This must be melted over a water bath and painted on while warm. It cools in an hour or less to a pliable, smooth covering that can be removed with

PREScription 8.—*Unna Zinc Oxide Jelly*

	Gm. or Cc.
R Zinc oxide	10
Gelatin	30
Glycerin	30
Water	30

water. On very moist surfaces it is difficult to use. Alternate layers of the jelly and thin layers of cotton or gauze may be used to make the glove or legging sufficiently strong.

Antipruritics may be added to any of these preparations. Both by experience and by experiment phenol has been found the most useful. It must not be used in too great strength, for as little as 1.5 per cent in wet dressings has been credited with causing gangrene. In watery lotions 0.5 per cent, dissolved by the aid of glycerin, is usually sufficient. It is necessary to use a stronger percentage in alcohol or oil because the effect is much less than in water. One per cent is usual. The

paper or cloth wet with water or boric acid solution after preliminary cleansing with dry paper. If no dermatitis other than that caused by scratching is present and no other definite cause as cited under etiology can be found, this method should always be tried. Even when another cause has been found and corrected, it is a wise adjunct treatment.

When this alone does not give entire relief, the addition of 1 per cent saponated solution of cresol or of 10 to 100 per cent solution of coal tar may succeed, or it may be necessary to use these antipruritics only occasionally. They are more generally acceptable than ointments.

If the skin is dry and fissured, ointments may be indicated. Zinc oxide ointment containing 1 per cent of phenol or from 10 to 25 per cent camphorated phenol may be used, or ointment of ammoniated mercury with or without the same antipruritics.

One source of acute dermatitis about the anus and genitalia is the use of anesthetic ointments, procaine hydrochloride or related drugs. Ethyl aminobenzoate, orthoform and the newer proprietary anesthetics, as well as resorcinol, used because of a real pruritus without inflammation, sometimes result in a sharp, often weeping, dermatitis which causes intense suffering and may be the beginning of a widespread inflammation of the skin.

Psychotherapy can cure some of the anogenital cases, especially in women. There are reports of such cases that have been proved to be due to fear of another pregnancy after a difficult delivery, fear of pregnancy in the unmarried, masturbation or other forms of sexual maladjustment. This is, of course, only repeating the statement of Fantus and Cornbleet⁴ that local pruritus may be due to any of the causes of general pruritus.

In the baffling cases sometimes seen, one may use the injection of alcohol, originated by Stone in 1916. The area involved must be carefully mapped out, with special attention to the border areas, which the patient may have neglected to mention. Then the vulvar and perianal regions are cleansed as for other surgery, a general anesthetic is administered, and 95 per cent alcohol is injected, the needle entering perpendicularly into the skin. From 2 to 4 minims (0.12 to 0.25 cc.) is injected just under the skin at each point, the points being about one fourth inch apart. In older patients these points must be farther apart to avoid sloughing. This procedure succeeds in most cases in relieving itching for from several months to several years. It can be repeated if necessary. Blood vessels must be avoided.⁵

Surgical excision for pruritus is to be used only in extreme cases. It often fails to cure.

Bath Pruritus and Winter Itch.—These are both caused by dryness of the skin, the soap and water removing the oil and the dry air of winter, outdoors as well as indoors, removing the moisture. These causes are often combined. The difficulty is easily controlled by omitting soap from the bath, except for the extremities, face and flexures, and not bathing very frequently in the winter time. After the bath, while the skin is still damp, an emollient, such as borated cold cream, should be applied to the parts that tend to itch. Efforts should be made to increase humidity in the dwelling.

Senile Pruritus.—This is often classed with bath and winter itch but frequently is of entirely different etiology, as Rothman⁶ points out. The skin of old persons with this condition, usually men, is often soft and pliable, a skin younger than its wearer. Prostatic hypertrophy and infection or renal disease with an increased deposit of waste matter in the skin is answerable for many of the cases, but in some no etiology is discoverable other than arteriosclerosis and decreased nutrition of the skin; not, however, enough to cause evident atrophy.

Mental Aspect.—Finally, the mental possibilities should be investigated in every case of persistent itching. Itching is peculiarly subject to suggestion, both unfavorable and favorable, and the proper frame of mind in the patient is a prime requisite for cure. Not every case requires psychoanalysis or hypnotism; but every patient needs encouragement and confidence in his physician. A painstaking investigation of possible worries or fears and a patient explanation of the evil effect of such emotions may often be the most important parts of the treatment. They should never be overlooked. Stokes and his school must be thanked for their insistence on the value of an awareness of these facts in the treatment of pruritus and pruritic disorders.

104 South Michigan Avenue.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

ATMORAY

(Ozone Generator)

NOT ACCEPTABLE

Manufacturer: Atmoray, Inc., 404 Davis Building, Third and Washington, Portland, Ore.

At times, in order to fulfil its assumed obligations to the medical profession and to the public, the Council may consider itself called on to investigate and prepare reports on devices which have not been submitted, if such reports, in the opinion of the Council, are important to public health and welfare. The advertising of Atmoray Inc. has been inspected and this report has been based on it.

In a pamphlet titled "Atmoray—With Therapeutic Values of Ozone" the Atmoray is described as a device used to deodorize and purify air by generating ozone. It is claimed that the Atmoray produces an "invisible ray" which drives out "injurious bacteria from affected parts of the body." No description of the mechanism of the device is given in the pamphlet and there is no statement as to what method is used to produce ozone, or how much ozone is produced.

The manner in which the device gives its declared therapeutic benefits is described by a portion of the pamphlet titled "The Atmoray (An Astounding Component of the Universe)." This portion states: "It produces pure ozone without heat and entirely without gases or deleterious action. The tubes may be placed upon any part of the bare body with absolute safety and any part of the anatomy will show outstanding, beneficial results. Atmoray not only produces ozone but with it an invisible ray that acts directly on the human organism. Nothing to take as Atmoray does the doing and the human body responds to the natural law. It is a matter of record where statements have been made by eminent scientists of this country that the direct action of ozone in the human body is

4. Fantus, Bernard, and Cornbleet, Theodore: *The Therapy of Itching (Pruritus)*, J. A. M. A. 106: 2144 (June 20) 1936.

5. Wilson, W. M.: *Treatment of Pruritus Vulvae by Alcohol Injections*, J. A. M. A. 110: 493 (Feb. 12) 1938.

6. Rothman, S.: *Jucken und juckende Hautkrankheiten, Handbuch der Haut. u. Geschlechtskrankheiten*, Berlin, Julius Springer, 1931, vol. 14.

its attack on the impurities of the blood stream and while eliminating the impurities it builds and increases the red blood corpuscles. The ray from the Atmoray has an intensive penetrating quality by which it carries the ozone with it directly to the affected part of the anatomy. Back goes vitality to the body. Out goes injurious bacteria. The human system undergoes revitalization, the nerves relax, the blood purifies, and nature responds with the help of Atmoray."

The following portion from the pamphlet is apparently a further discussion of the "invisible rays": "The questions as to what are rays has a complete answer only with the Great Architect of the universe; and man in his ever consistent effort of development and learning succeeds in individualizing one now and then and the whole face of humanity undergoes another change lighting the way a little further down the path of truth."

It is apparently indicated that an attempt has been made to imply, through the use of confusing, indefinite statements, that the Atmoray has unexplainable mystic qualities. Where specific therapeutic claims are made, no evidence is given to substantiate the statements. There is no evidence, for example, that ozone will "attack the impurities of the blood stream and while eliminating the impurities it builds and increases the red blood corpuscles."

The pamphlet quotes Leo Verbon, a naprapath, of Portland, Ore.: "We have used several of your Atmoray machines in our hospital. . . . There is hardly a condition that we have not treated in this hospital where Atmoray Ozone Generator has not benefited them." Verbon cites several specific instances in which he considered the use of the Atmoray was the greatest contributing factor to recovery; he gives the most space to a case "suffering from cardiovascular-renal disease," although he also states that in his hospital the machine is "considered standard treatment in sinusitis and head colds and post-operative cases," and that it is very useful in the treatment of colitis and arthritis "because ozone inhibits bacteria growth." It is stated that the hospital also finds the Atmoray invaluable for deodorizing patients' rooms. In another part of the advertising the firm states "Disease germs are completely eliminated when coming in contact with ozone."

Ozone, regardless of where or how it is generated, has little or even no effect on bacteria or germs.¹ Experiments performed long ago on all kinds and types of bacteria in both the dry and moist condition showed that for ozone to be even a little effective it had to be present in such concentrations as were distinctly harmful to the delicate membranes of the nose, throat and lungs of a human being. Recent investigation has confirmed these observations.²

With reference to deodorizing through the use of ozone, the firm makes these statements: "Ozone in itself is one of the most effective oxidizing, germicidal, disinfecting, and deodorizing agents known; and for some time has been successfully employed for the purpose of converting foul and impure atmosphere into pure wholesome air. . . . It is a well known fact that our outside so-called pure air is ever increasingly permeated with carbon monoxide gases, and other injurious elements emanating from smoke of factories, internal combustion motors and many other contributing factors. . . . In purifying the air, ozone oxidizes all organic impurities, thus preventing the forming and supporting the life of malignant germs which give rise to unhealthy gases and obnoxious odors."

While ozone tends to fatigue the sensory nerve endings, governing the sense of smell so that an individual can no longer smell odors, it does not act as a deodorant—only as a masking agent or substitute odor.³ As an oxidizer for fumes, odors or gases, ozone has also been found to be ineffective.⁴

Since irritation of the mucous membranes of the nose, throat and lungs, headaches, drowsiness, fatigue and a burning sensa-

tion in the eyes may all result from exposure to ozone,⁵ the Atmoray is regarded by the Council as a device capable of being harmful to man.

The Council on Physical Therapy voted not to include the Atmoray on its list of accepted devices, because the Council believes that the marketing methods and advertising employed by the firm are inimical to the public welfare.

B-K PLANT EMERGENCY INHALATOR ACCEPTABLE

Manufacturer: Bishinger-Koehler Manufacturing Company, 7838-7842 Kelly Street, Pittsburgh.

The B-K Plant Emergency Inhalator is a portable device that can be attached to any standard cylinder of oxygen or oxygen-carbon dioxide mixtures for plant emergency treatment of respiratory failure or asphyxia. The firm claims that its basic mechanism is practically identical with the integral part of the mechanism of the previously accepted B-K Inhalator (THE JOURNAL, Sept. 5, 1936, p. 790). This unit differs only in not being fitted in a carrying case with two small tanks, but rather it may be attached to any gas tank for plant use. The control mechanism is also stated by the firm to be identical with the self-adjusting feed valve of the Paul Breathing Unit, Bureau of Mines Approval 1301.

No adjustment or setting of gas flow is necessary; the operator need only open the cylinder valve. The apparatus provides automatic control of the flow, is self compensating to the needs of the patient and thus delivers the volume of gas as determined by the pressure in the patient's lungs. As there is no continuous flow of gas, there is claimed to be no "bucking" of exhalation with a consequent reinhalation of exhaled air.

If necessary, one person can operate the mechanism and administer artificial resuscitation. The apparatus gives the operator an audible indication of the number of respirations per minute, as well as of their character and depth, by a slight hissing sound.

The inhalator was submitted to a reliable investigator for investigation and on examination he found that the mechanism of the B-K Plant Emergency Inhalator is very similar to that of the complete B-K inhalator previously examined.

The Council on Physical Therapy voted to accept the B-K Plant Emergency Inhalator for inclusion on the Council's list of accepted devices.



B-K Plant Emergency Inhalator.

CHA-GOBE NASAL FILTER NOT ACCEPTABLE

Manufacturer: C. K. Stotz, Farmington, Conn.

The Cha-Gobe Nasal Filter is a small device intended, according to the manufacturer, to be inserted into the nasal openings to provide relief from "hay fever and other nasal irritations caused by dust, flower pollen and animal hair." It consists of a stainless steel wire loop which bridges the nasal septum and holds two wire frames twisted to fit the nasal passages and covered by single-layer bags of silk cloth. According to the circular enclosed with the filter it "has been tested and proven successful in severe cases of hay fever."

The Council investigated the device:

Microscopic measurements of the silk mesh indicated that the openings vary from about $\frac{3}{50}$ to $\frac{3}{150}$ inch. Since the average ragweed pollen grain is about $\frac{1}{2,500}$ inch it appeared unlikely that these grains of pollen would fail to get through this filter. This was verified by placing a pinch of dry ragweed pollen in the silk bag, through which the powder sifted quite readily.

The apparatus was tried in the noses of two different patients. In neither of them did it fit properly and in one the space between the nose piece and the wall of the nose was considerable.

5. Kenrich: Zur Verwendung des Ozone in der Leistung. Ztschr. f. Hyg. u. Infektion-kr. 73: 443, 1913. Jordan and Carlson.¹

1. Jordan, E. O., and Carlson, A. J.: Ozone: Its Bactericidal, Physiologic and Deodorizing Action, J. A. M. A. 61: 1007 (Sept. 27) 1913.

2. Kendall, A. I., and Walker, A. W.: Effects of Ozone on Certain Bacteria, J. Infect. Dis. 58: 204 (March-April) 1936.

3. Wolfhugel; Ztschr. f. Biol. 9: 408, 1895.

4. Ozone in Ventilation, Pub. Health Rep. 35: 989 (April 23) 1920.

Further experiments were regarded unnecessary and unjustifiable, since it was quite evident that this "filter" could not keep back pollen and, therefore, could not prevent hay fever. Since pollen also has a port of entry through the mouth and eyes, prevention of its entry through the nose alone does not provide adequate protection from pollen in any case.

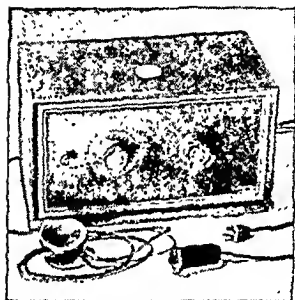
In the advertising circular the claim is made that the device will provide relief from head colds as well as hay fever. No evidence was submitted to substantiate these claims.

The Council on Physical Therapy voted to reject the Chagobc Nasal Filter for inclusion on the Council's list of accepted devices.

WESTERN ELECTRIC AUDIOMETER, MODEL 6B ACCEPTABLE

Manufacturer: Western Electric Company, Inc., 195 Broadway, New York.

The Western Electric Audiometer, Model 6B, is designed to measure the acuity and range of hearing. The instrument and receivers are calibrated independently, so that any Western Electric audiometer may be fitted with any receiver of the Western Electric type for audiometers. Its dimensions are 10 by 12 by 18 inches and it operates on alternating or direct current. The receiver available for the 6B is a moving coil dynamic type with rubber caps to hold against the ears. A heterodyne oscillator type of circuit is employed. There is provision for attaching a microphone. Both air and bone conduction receivers are provided as standard equipment.



Western Electric Audiometer,
Model 6B.

It has a sweep frequency circuit ranging from 128 to 9,747 cycles per second. Octaves, semioctaves and quarter octaves are indicated; others are interpolated. It is calibrated in 5 decibel steps for intensity. The

maximum intensity range of the test tones above the normal threshold is given in the accompanying table.

The unit has a masking device with a single frequency tone and a transmitter which is optional accessory equipment. The

*Maximum Intensity Range of Test Tones Above
Normal Threshold*

Test Tone Cycles, Per Second	Air Conduction	Bone Conduction	Masked Bone Conduction
128	65	..	..
256	90	25	..
512	100	35	20
1024	105	45	25
2048	105	50	30
4096	100	55	30
8192	75	50	25
9747	70	45	..

reason, according to the firm, for the difference in range between the tone for hearing and for masking is that part of the audiometer output power is diverted electrically from the bone conduction receiver to the air conduction receiver used for masking the other ear and, in consequence, the power available for the bone conduction receiver is lessened.

The purity of tone is a function of intensity, and the extent to which the amplifier is loaded governs the harmonic output.

The Proposed Minimum Specifications for Audiometers for General Diagnostic Purposes, Z24.5 of American Standards Association, Dec. 1, 1937, were used as a standard in the following investigation conducted in a laboratory acceptable to the Council. These specifications are comparable to the "Minimum Requirements for Acceptable Audiometers," adopted by the Council on Physical Therapy.

Tests were made by operating the audiometer with alternating current of 60 cycles per second at 115 volts and with direct current at 115 volts.

It complied with the specifications in the following respects:

1. Range of frequency of test tone.
2. Control of intensity.
3. Accuracy of frequency.
4. Audiometer calibration.
5. Purity of tone.
6. Extraneous noise.

Operation of the audiometer from a direct current supply having a considerable amount of generator ripple gives rise to extraneous noise in the audiometer receiver, to the extent that the audiometer does not comply with specification.

The performance of the audiometer relative to the production of extraneous noise when operated on direct current is therefore dependent on the amount of ripple in the direct current supply. This condition has been recognized by the manufacturer and he will supply, as accessory equipment (external to the audiometer), a line filter which would be plugged into the power supply cord just before the audiometer.

A line filter was submitted by the manufacturer, and tests showed that the audiometer, when used in conjunction with such a line filter on a direct current supply having considerable generator ripple, meets the requirements of the specification.

According to the manufacturer, very few direct current installations would require the extra equipment, since most sources of direct current supply are relatively free from generator ripple.

The Council on Physical Therapy voted to accept the Western Electric Audiometer, Model 6B, for inclusion on the Council's list of accepted devices.

TELEX HEARING AID ACCEPTABLE

Manufacturer: Telex Products Company, 1645 Hennepin Avenue, Minneapolis.

The Telex Hearing Aid consists of the following parts:

- Microphone and amplifier unit, Serial No. 10340.
- Battery and flexible leather battery case.
- Miniature crystal receiver with molded plastic ear piece.

The microphone and amplifier units are disk shaped, are 3¼ inches in diameter by 1 inch deep and weigh approximately 5¼ ounces. The battery case with the battery, approximately 4¼ by 3½ by 1½ inches in size, weighs 14½ ounces. The receiver is 1 inch in diameter by ½ inch deep and with the molded ear piece and cord weighs approximately one-half ounce. The microphone and amplifier unit is provided with a knurled disk by which the volume is controlled.

Battery Consumption.—The A battery is a single 1½ volt cell and the current drawn at all settings of the volume control is 130 milliamperes. The B battery is a 30 volt unit and the current drawn is about 1 milliampere but varies according to the volume control.

Internal Noise.—The internal noise is so low as to be unobjectionable.

Amplification.—Amplification measurements at discrete frequencies were made audiometrically with two deaf subjects. The following are typical of the results of repeated measurements using 30 volts B battery:

Frequency	128	256	512	1,024	2,048	4,096
Gain:						
¼ full volume	4	6	19	20	21	9
full volume	16	17	30	31	30	17

Articulation Tests.—Articulation tests were conducted using transmitter 10340 on two deaf subjects. The volume control was set for comfortable hearing of speech at a distance of 5 feet. Sentence intelligibility under these conditions was 100 per cent and syllable articulation was in one case 96 per cent and the other 88 per cent.

The Council on Physical Therapy voted to accept the Telex Hearing Aid (10340 type of microphone) and amplifier unit for inclusion on its list of accepted devices.

MEDICAL LICENSURE STATISTICS FOR 1939

ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Medical licensure and allied statistics are presented herewith for the thirty-eighth consecutive year. This report by the Council on Medical Education and Hospitals of the American Medical Association covers the year 1939 and includes data regarding (a) medical examining and licensing boards of the United States, the District of Columbia, the territories and the possessions of the United States, (b) examining boards in the medical specialties, (c) boards of examiners in the basic sciences and (d) the National Board of Medical Examiners.

The official reports which form the basis of these computations have been contributed throughout the year by the medical licensing boards of all states, the District of Columbia, Alaska, the Canal Zone, Hawaii, Puerto Rico and the Virgin Islands; the homeopathic boards of Connecticut, Delaware, Louisiana and Maryland; the fourteen basic science boards in operation last year (Arizona, Arkansas, Colorado, Connecticut, District of Columbia, Florida, Iowa, Minnesota, Nebraska, Oklahoma, Oregon, South Dakota, Washington and Wisconsin); the fourteen approved examining boards in the medical specialties, namely anesthesiology, dermatology and syphilology, internal medicine, obstetrics and gynecology, ophthalmology, otolaryngology, orthopaedic surgery, pathology, pediatrics, plastic surgery, psychiatry and neurology, radiology, surgery and urology, and the National Board of Medical Examiners. The homeopathic and eclectic examining boards of Arkansas did not license any one during the year.

The cooperation of the officers of the agencies in furnishing complete reports makes possible these annual compilations. The Council and THE JOURNAL express thanks and appreciation to those who have supplied these data, for without such help the presentation of the calculations included in the following pages would not have been possible.

Each week there appear in THE JOURNAL dates of coming examinations of state licensing and basic science boards, special boards and the National Board of Medical Examiners. Soon after they are held, blanks for recording and placing on file in the archives of the Association the results of such tests are regularly mailed. Reports of all examinations and those licensed by endorsement of credentials are carefully checked with the biographic file of physicians and the proper entry is made. In the occasional instance in which the applicant, according to the records, has not graduated or there is some irregularity, the board is notified. The reports are thereafter used for statistical compilations and then permanently filed. Credentials of physicians coming from abroad are verified by direct correspondence with official agencies abroad so far as is possible. More than thirty licensing boards obtain from the Council verification of biographic data and other claims before granting a license or permission to take the licensing examination. This service is available to all boards.

The tables referring to medical licensing boards include figures regarding the number of candidates

examined for medical licensure in 1939, the number licensed and the number added to the profession. The state boards are discussed first, followed by the special boards, the basic science boards and the National Board of Medical Examiners.

LICENSES ISSUED

The figures presented in the first table cover the number of licenses issued in the various states, territories and possessions, both by examination and reciprocity or endorsement of state licenses or by the

TABLE 1.—Licenses Issued, 1939

	On the Basis of		
	Examina- tion	Reciprocity and Endorse- ment	Total
Alabama.....	7	50	57
Arizona.....	11	11	22
Arkansas.....	68	22	90
California.....	382	241	623
Colorado.....	69	31	100
Connecticut.....	53	67	120
Delaware.....	11	3	14
District of Columbia.....	54	55	109
Florida.....	172	0	172
Georgia.....	90	35	125
Idaho.....	24	0	24
Illinois.....	516	96	612
Indiana.....	113	69	182
Iowa.....	94	69	163
Kansas.....	86	24	110
Kentucky.....	85	57	142
Louisiana.....	73	21	94
Maine.....	42	16	58
Maryland.....	186	55	241
Massachusetts.....	277	101	378
Michigan.....	238	144	382
Minnesota.....	217	27	244
Missouri.....	22	35	57
Montana.....	211	75	286
Nebraska.....	11	19	30
Nevada.....	78	16	94
New Hampshire.....	4	11	15
New Jersey.....	10	23	33
New Mexico.....	237	161	398
New York.....	2	47	49
North Carolina.....	1,024	415	1,439
North Dakota.....	57	68	125
Ohio.....	17	9	26
Oklahoma.....	365	119	484
Oregon.....	41	37	78
Pennsylvania.....	26	29	55
Rhode Island.....	549	63	612
South Carolina.....	25	14	39
South Dakota.....	48	12	60
Tennessee.....	15	3	18
Texas.....	181	30	211
Utah.....	298	176	384
Vermont.....	17	28	45
Virginia.....	24	10	34
Washington.....	113	66	179
West Virginia.....	59	47	106
Wisconsin.....	33	59	92
Wyoming.....	111	61	172
Totals.....	6,394	2,866	9,260

* Alaska, the Canal Zone, Hawaii, Puerto Rico and the Virgin Islands.

certificate of the National Board of Medical Examiners. During the year 1939 there were 9,260 licenses issued to practice medicine and surgery in the forty-eight states, the District of Columbia, Alaska, the Canal Zone, Hawaii, Puerto Rico and the Virgin Islands. Of the 9,260 licenses, 6,394 were issued after examination and 2,866 by reciprocity and endorsement. In several states (table 17) the internship is a requisite

(Continued on page 1638)

Jour. A. M. A.
APRIL 27, 1940

TABLE 2.—CANDIDATES EXAMINED BY

Markinal Number

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota
SCHOOL	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
1 University of Arkansas School of Medicine.....																						
2 College of Medical Evangelists.....	1	0	1	0		59	2															
3 Stanford University School of Medicine.....		1	0			59	1															
4 University of California Medical School.....		1	0			41	0															
5 University of Southern California Sch. of Med.						2	0	35	0													
6 University of Colorado School of Medicine.....						1	0															
7 Yale University School of Medicine.....						2	0															
8 George Washington University School of Med.						1	0															
9 Georgetown University School of Medicine.....																						
10 Howard University College of Medicine.....																						
11 Emory University School of Medicine.....																						
12 University of Georgia School of Medicine.....																						
13 Loyola University School of Medicine.....																						
14 Northwestern University Medical College.....																						
15 University of Chicago, Rush Medical College.....																						
16 University of Chicago, The School of Medicine.....																						
17 University of Illinois College of Medicine.....																						
18 Indiana University School of Medicine.....																						
19 State University of Iowa College of Medicine.....																						
20 University of Kansas School of Medicine.....																						
21 University of Louisville School of Medicine.....																						
22 Louisiana State University School of Med.																						
23 Tulane University of Louisiana School of Med.																						
24 Johns Hopkins University School of Medicine.....																						
25 University of Maryland School of Medicine and College of Physicians and Surgeons.....																						
26 Boston University School of Medicine.....																						
27 Harvard Medical School.....																						
28 Tufts College Medical School.....																						
29 University of Michigan Medical School.....																						
30 Wayne University College of Medicine.....																						
31 University of Minnesota Medical School.....																						
32 St. Louis University School of Medicine.....																						
33 Washington University School of Medicine.....																						
34 Creighton University School of Medicine.....																						
35 University of Nebraska College of Medicine.....																						
36 Albany Medical College.....																						
37 Columbia University Coll. of Phys. and Surgs.																						
38 Cornell University Medical College.....																						
39 Long Island College, Flower and Fifth Avenue Hospitals.....																						
40 New York University College of Medicine.....																						
41 Syracuse University College of Medicine.....																						
42 University of Buffalo School of Medicine.....																						
43 University of Rochester Sch. of Med. and Dentistry																						
44 Univ. of Rochester Sch. of Medicine.....																						
45 Duke University School of Medicine.....																						
46 Ohio State University College of Medicine.....																						
47 University of Cincinnati College of Medicine.....																						
48 Western Reserve University School of Medicine.....																						
49 University of Oklahoma School of Medicine.....																						
50 University of Oregon Medical School.....																						
51 Hahnemann Medical Coll. and Hosp. of Phila.																						
52 Jefferson Medical College of Philadelphia.....																						
53 Temple University School of Medicine.....																						
54 University of Pennsylvania School of Medicine.....																						
55 University of Pittsburgh School of Medicine.....																						
56 Woman's Medical College of Pennsylvania.....																						
57 Medical College of the State of South Carolina																						
58 Meharry Medical College.....																						
59 University of Tennessee College of Medicine.....																						
60 Vanderbilt University School of Medicine.....																						

P = Passed; F = Failed.

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TABLE 2.—CANDIDATES EXAMINED BY MEDICAL

Marginal Number	SCHOOL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	Marginal Number		
		Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota			
	TEXAS	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F			
61	Baylor University College of Medicine.....		1	0						2	0										0	1	1	0	61	
62	University of Texas School of Medicine.....									1	0											2	0	2	62	
	VERMONT																									
63	University of Vermont College of Medicine....							1	1										1	0		0	1	0	63	
	VIRGINIA																									
64	Medical College of Virginia.....									2	1		1	0				1	0		1	0		1	64	
65	University of Virginia Department of Medicine							1	0		1	0	2	1						1	0	1	0	1	65	
	WISCONSIN																									
66	Marquette University School of Medicine.....				2	1		1	0		2	1		5	0						1	0	2	0	66	
67	University of Wisconsin Medical School.....		1	0		1	0						2	0			3	0		1	0	2	0	1	67	
	CANADA																									
68	Dalhousie University Faculty of Medicine.....																								68	
69	Laval University Faculty of Medicine.....																		1	0					69	
70	McGill University Faculty of Medicine.....	1	0		22	0	1	0	1	0			1	0											70	
71	Queen's University Faculty of Medicine.....	1	0											1	0			1	0	2	0	1	0	5	71	
72	University of Alberta Faculty of Medicine.....				1	0				1	0														72	
73	University of Manitoba Faculty of Medicine....																								73	
74	University of Montreal Faculty of Medicine....																								74	
75	University of Toronto Faculty of Medicine....									1	0	0	1												75	
76	University of Western Ontario Medical School.										1	0							1	0		1	0		76	
77	Foreign Medical Faculties.....				24	7		6	39					79	17	2	0	5	1		2	5	10	15	65	77
78	Extinct Medical Schools.....										1	2										3	0		78	
79	Unapproved Schools.....		2	1		22	3	1	1		2	0		51	0						80	22			79	
80	Totals	14	12	68	402	72	100	13	54	199	90	32	541	108	106	85	88	153	48	203	534	217	218	80		
81	Totals—Examined—Passed	14	11	68	382	69	53	11	54	172	90	24	523	108	104	85	88	153	42	187	277	217	217	81		
82	Totals—Examined—Failed	0	1	0	20	3	47	2	0	27	0	8	18	0	2	0	0	0	6	16	257	0	1	82		
83	Percentage—Failed	0.0	8.3	0.0	5.0	4.2	47.0	15.4	0.0	13.6	0.0	25.0	3.3	0.0	1.0	0.0	0.0	0.0	12.5	7.9	48.1	0.0	0.5	83		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			

P = Passed; F = Failed.

(CONTINUED FROM PAGE 1635)

for practice but a physician is permitted to take the examination in most of these states and if successful his license is withheld until completion of the internship. This practice is followed by recent graduates. Licenses are also withheld for proof of citizenship and for minor technicalities. In some states also the licenses of those examined in December are dated and issued early in the following year. The 9,260 licenses issued

licenses only on the basis of examination. Massachusetts and Rhode Island have no reciprocity privileges but endorse diplomates of the National Board of Medical Examiners. Figures for four previous years are shown for comparison in table 3.

The total number licensed in 1939, 9,260, was 237 less than in 1938 and 562 fewer than 1937 but 220 more than in 1936 and 1,349 more than in 1935. On the basis of examination the figures decreased 156 and those licensed by reciprocity and endorsement decreased eighty-one compared with the figures for 1938. The 9,260 licenses issued do not, however, represent individuals, since several have been licensed in more than one state during the year. Nor do they represent additions to the medical profession at large, since the majority of the 2,866 licensed by reciprocity and endorsement with the exception of the National Board diplomates, have migrated from other states. Table 12 shows how many of those licensed were never before registered and therefore represent the number added to the medical profession in the United States and its territories and possessions in 1939.

TABLE 3.—Licenses Issued on the Basis of Examination, Reciprocity and Endorsement, 1935-1939

	Examination	Reciprocity and Endorsement	Total
1935.....	5,718	2,192	7,911
1936.....	6,272	2,768	9,040
1937.....	6,627	3,195	9,822
1938.....	6,550	2,947	9,497
1939.....	6,394	2,866	9,260
Totals.....	31,561	13,969	45,530

include, therefore, many who were examined in 1938 and even a few in previous years. New York issued the largest number of licenses, 1,439, California 623, Illinois and Pennsylvania 612. These states are the only ones which registered more than 500. Twenty-three states, Alaska, the Canal Zone, Hawaii, Puerto Rico and the Virgin Islands licensed less than 100. Candidates were licensed after examination in every state, the lowest being two in New Mexico. The Canal Zone and the Virgin Islands licensed none by examination. Three were registered in the Virgin Islands, two in the Canal Zone, five in Alaska, eleven in Puerto Rico and twenty-eight in Hawaii. Of those registered in the last three named, one in Alaska, three in Puerto Rico and ten in Hawaii were licensed by reciprocity or endorsement. The states of Florida and Idaho grant

CANDIDATES EXAMINED BY MEDICAL EXAMINING
BOARDS IN 1939

Figures referring to those examined for medical licensure by individual states throughout the year, giving the number who passed and failed in each state, are included in table 2. There were 7,753 examined, of whom 6,489 passed and 1,264 failed, representing sixty-seven four year approved medical schools in the United States and nine of the medical schools of Canada, eighty-six faculties of medicine and three licensing corporations of other countries, seven medical schools now extinct, nine unapproved institutions and several osteopathic colleges. Osteopaths who were granted the privilege to practice medicine, surgery or

	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50									
Marginal Number	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska, Hawaii and Puerto Rico	Totals	Examined—Passed	Examined—Failed	Percentage—Failed	No. Boards Examined by				
P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	P	F	P	P	P	P	P	P	P	P	P	P	P	P	P	F				Marginal Number			
61	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	68	1	..	..	..	..	..	..	..	73	73	3	2.7	6	61
62	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	89	0	..	..	1	0	..	..	..	97	97	0	0.0	6	62
63	..	..	..	..	..	..	..	..	5	2	..	..	..	..	..	..	..	..	..	..	..	14	0	..	..	..	..	..	26	29	4	15.4	6	63
64	1	0	..	0	2	5	0	..	3	0	41	0	..	6	0	1	0	..	1	0	4.5	13	64		
65	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	1	0	..	..	..	..	33	0	..	1	0	..	66	64	3	1.5	11	65
66	..	..	..	..	..	..	1	0	..	1	3	..	..	1	0	..	..	1	0	..	..	..	..	..	..	41	0	..	68	63	5	7.3	13	66
67	..	1	0	1	0	..	1	0	3	0	1	0	1	0	36	0	1	0	1	0	0.0	17	67		
68	..	..	..	..	..	..	..	..	15	1	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	17	16	1	5.9	2	68
69	..	..	1	0	..	4	0	2	0	..	10	3	..	..	2	0	..	..	..	..	..	1	..	..	..	..	..	..	1	1	0	0.0	1	69
70	..	..	..	..	..	..	..	..	3	4	..	1	0	2	0	..	..	..	..	..	..	1	0	..	3	0	..	..	72	69	3	4.2	23	70
71	..	..	..	..	..	..	..	..	3	4	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	10	6	4	40.0	4	71
72	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	4	0	0.0	4	72
73	..	..	..	..	..	..	1	0	..	1	0	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	5	5	0	0.0	4	73
74	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	0	0.0	1	74
75	..	1	0	..	..	..	..	..	5	0	..	1	0	2	0	..	..	..	..	5	1	1	0	..	..	..	..	..	31	28	3	9.7	12	75
76	..	1	0	..	..	..	..	..	6	0	..	2	0	..	..	1	0	..	..	..	..	..	..	1	0	..	..	..	15	15	0	0.0	6	76
77	..	6	0	1	0	..	1	60	79	1	0	472	621	..	25	9	3	0	..	8	7	..	1	0	2	0	4	1	1,692	839	533	50.4	27	77			
78	..	..	..	..	..	..	..	..	..	..	1	0	54	15	..	..	..	..	1	0	..	..	..	..	..	..	..	..	4	2	25.6	3	78	
79	0	1	45	8	36	0	..	1	0	23	6	1	0	0	1	0	2	519	274	245	47.2	15	79
80	21	211	11	78	4	16	348	2	1,718	57	18	384	43	26	560	23	48	15	193	223	17	17	114	60	33	111	9	34	7,733	.....	.....	.....	80	
81	21	211	11	78	4	14	237	2	1,024	57	17	360	43	26	549	23	48	15	193	208	17	17	113	59	33	111	8	30	6,489	.....	.....	.....	81	
82	0	0	0	0	0	2	111	0	694	0	1	15	0	0	11	0	0	0	0	15	0	0	1	1	0	0	1	4	.....	1,264	.....	.....	82	
83	0.0	0.0	0.0	0.0	0.0	12.5	31.9	0.0	40.4	0.0	5.6	3.9	0.0	0.0	2.0	0.0	0.0	0.0	0.0	6.7	0.0	0.0	0.9	1.7	0.0	0.0	11.1	10.8	.....	.....	16.3	.....	83	
	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50									

both by the medical board are included in these statistics, eliminating, for instance, those osteopaths in California who were granted privileges as physicians and surgeons by the osteopathic board. There were 5,379 graduates of approved medical schools in the United States examined, of whom 2.8 per cent failed; 156 graduates of approved Canadian medical schools, 7.1 per cent of whom failed; 1,692 graduates of schools outside the United States and Canada, principally in Europe, with 50.4 per cent failures; seven who graduated from medical schools now extinct with 28.6 per cent of failures, and 519 from unapproved and osteopathic schools, of whom 47.2 per cent failed. These 519 represented 168 graduates of osteopathic schools, of whom ninety-eight passed and 41.7 per cent failed; 351 graduates of unapproved schools, of whom 176 passed and 175, 49.9 per cent, failed. Graduates of osteopathic schools were examined by the medical boards of eight states, Colorado, Connecticut, Massachusetts, New Hampshire, New Jersey, Oregon, Texas and Wyoming, while graduates of unapproved schools were examined in eight states and Puerto Rico—Arizona, Florida, Illinois, Massachusetts, Ohio, Pennsylvania, Texas and Virginia. Of the 168 osteopaths, sixty were examined in Massachusetts, fifty-three in New Jersey, twenty-five in Texas and twenty-five in Colorado. Other states examined fewer than three. Of the graduates of other than recognized schools, Massachusetts examined 251, Illinois fifty-one and Ohio thirty-six. All other states examined fewer than five. Osteopaths in Colorado, Massachusetts, New Hampshire, New Jersey and Texas were examined in medicine and surgery, those in Oregon and Wyoming only in surgery, while Connecticut examined one in surgery and one in medicine.

The 7,753 examined do not represent individuals, since a candidate might take the examination in more

than one state and would be counted in each state. This applies to those who pass or fail, or those who fail and later pass in one or more states, or pass in one state and later in the same year fail elsewhere. However, if a candidate fails more than once in a given state within the year he is counted in that state only once as a failure.

Three of the five homeopathic boards in existence, Connecticut, Delaware and Maryland, examined twenty-one candidates, one of whom failed. The homeopathic board in Arkansas did not examine any one during the year, while the homeopathic board of Louisiana registered one by reciprocity. The one eclectic board in existence, in Arkansas, did not examine a candidate.

The largest number of graduates of any one school examined was 180, representing the University of Illinois College of Medicine. One hundred and sixty-four graduates of Northwestern University Medical School were examined in twenty-seven states, while 168 from the Hahnemann Medical College of Philadelphia were examined in seventeen states.

Albany Medical College and the University of Buffalo School of Medicine had the highest percentage of failures in the United States, 20.0 and 22.6 per cent, respectively. Fifteen schools in the United States had no failures before medical licensing boards, thirty-seven schools less than 5 per cent, nine between 5 and 10 per cent and six more than 10 per cent.

Graduates of Harvard Medical School were examined in the greatest number of states, thirty, graduates of Northwestern University Medical School by twenty-seven states, Rush Medical College twenty-six, Creighton University School of Medicine twenty-five, Jefferson Medical College twenty-two, and the University of Pennsylvania twenty-one. All other schools had their graduates examined in fewer than twenty

(CONTINUED ON PAGE 1642)

TABLE 4.—GRADUATES OF 1937, 1938 AND 1939

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22										
Marginal Number	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Marginal Number									
SCHOOL	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P									
ARKANSAS																																
1 University of Arkansas School of Medicine.....			67	0	0	1				3	0												1									
CALIFORNIA																																
2 College of Medical	1	0	1	0		59	2			1	0	4	0	3	0	1	0			1	0	0	170									
3 Stanford University						59	1			2	0												1									
4 University of Calif.		1	0			59	1						1	0									103									
5 University of Southern California Sch. of Med.					41	0																	1									
COLORADO																																
6 University of Colorado School of Medicine.....				2	0	3	0																6									
CONNECTICUT																																
7 Yale University School of Medicine.....																		1	0				7									
DISTRICT OF COLUMBIA																																
8 George Washington University School of Med.				2	0			12	0	1	0			1	0					4	0		108									
9 Georgetown University School of Medicine.....						3	0	1	0	6	0							1	0	1	0	1	9									
10 Howard University College of Medicine.....				1	0			5	0					1	0								10									
GEORGIA																																
11 Emory University School of Medicine.....				1	0			19	14	0												1	101									
12 University of Georgia School of Medicine.....								4	1	31	0												12									
ILLINOIS																																
13 Loyola University School of Medicine.....						1	1		1	0		1	0	71	0	2	0			0	1	2	0	1013								
14 Northwestern University Medical School.....				8	0	2	0		2	0			67	0	1	0		1	0		1	0	9	0	12	014						
15 University of Chicago, Rush Medical College...				9	2	4	0		2	0			1	0	44	0	3	0	1	0		1	0	3	0	4	0	12	015			
16 University of Chicago, The School of Medicine				1	0	1	0	1	0				11	0			1	0	1	0	1	0		1	0	2	0	1	016			
17 University of Illinois College of Medicine.....				6	0		0	1				1	0	140	0	2	0					4	0	3	0	11						
INDIANA																																
18 Indiana University School of Medicine.....				1	0			1	0					99	0									1	014							
IOWA																																
19 State University of Iowa College of Medicine..				5	0		1	0						90	1									2	0	12						
KANSAS																																
20 University of Kansas School of Medicine.....				2	0										70	0								2	0							
KENTUCKY																																
21 University of Louisville School of Medicine....				2	0			1	0		2	0				77	0							2	1							
LOUISIANA																																
22 Louisiana State University School of Medicine	1	0	1	0		1	0					1	0			59	0		1	0				2	2							
23 Tulane University of Louisiana School of Med.	5	0						15	1	4	0					82	0			1	0			2	3							
MARYLAND																																
24 Johns Hopkins University School of Medicine..	1	0																	52	0				1	0	14						
25 University of Maryland School of Medicine and College of Physicians and Surgeons.....				1	0		2	1	1	0	1	0	1	0		1	0			53	0			2	5							
MASSACHUSETTS																																
26 Boston University School of Medicine.....						1	0									4	0		6	0				3	6							
27 Harvard Medical School.....				6	0		4	0		1	0	1	0	3	0	2	0		1	0		7	0	3	0	10	0	4	0	1	0	27
28 Tufts College Medical School.....						6	1			1	0			1	0			3	0		24	0			2	8						
MICHIGAN																																
29 University of Michigan Medical School.....				2	0			1	0			1	0			1	0		1	0	96	0	1	0	2	9						
30 Wayne University College of Medicine.....				1	0							1	0						1	0	64	0			3	0						
MINNESOTA																																
31 University of Minnesota Medical School.....				4	1							1	0			1	0			1	0			5	0	116	0	31				
MISSOURI																																
32 St. Louis University School of Medicine.....				1	0			2	0			2	0								1	0			6	2						
33 Washington University School of Medicine.....				8	0			1	0							1	0							2	0	3	3					
NEBRASKA																																
34 Creighton University School of Medicine.....		1	0		13	2	1	0	1	0			1	0		5	0	5	0		2	0		1	0		1	0	34			
35 University of Nebraska College of Medicine....				7	0						1	0				1	0				1	0			5	1						
NEW YORK																																
36 Albany Medical College.....				1	0														1	0					9							
37 Columbia University Coll. of Phys. and Surgs.				2	0		3	0		1	0									3	0				5	1						
38 Cornell University Medical College.....						2	0			1	0										1	0			5	2						
39 Long Island College of Medicine.....	1	0		1	0																1	0	1	0		5	3					
40 New York Medical College, Flower and Fifth Avenue Hospitals								1	0	1	0								1	0					4	0						
41 New York University College of Medicine.....				2	0		3	0		1	0								2	0		1	0			4	1					
42 Syracuse University College of Medicine.....																									4	2						
43 University of Buffalo School of Medicine.....																									4	3						
44 Univ. of Rochester Sch. of Med. and Dentistry						2	0		1	0		2	0					1	0						4	4						
NORTH CAROLINA																																
45 Duke University School of Medicine.....								4	0							1	0	1	0		1	0				4	5					
OHIO																																
46 Ohio State University College of Medicine....								1	0			1	0							1	0				1	0	4	6				
47 University of Cincinnati College of Medicine...								2	0																1	0	4	7				
48 Western Reserve University School of Medicine				1	0			1	0																	4	8					
OKLAHOMA																																
49 University of Oklahoma School of Medicine...				3	0																						4	9				
OREGON																																
50 University of Oregon Medical School.....				11	0				1	0	1	0							2	0					4	0	50					
PENNSYLVANIA													</																			

P = Passed; F = Failed.

	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						
Marginal Number	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	Alaska, Hawaii and Puerto Rico	Totals	Examined—Passed	Examined—Failed	Percentage—Failed	No. Boards Examined by	
1	1	0							4	1					2	0	1	0											80	78	2	2.5	7	
2							1	0			3	0		2	0				2	0				5	0	1	0		96	93	3	3.1	17	
3												1	0	1	0									1	0				56	55	1	1.8	6	
4																												61	60	1	1.6	2		
5				1	0																				1	0			43	43	0	0.0	3	
6									3	0	1	0							1	0	2	0					1	0	49	49	0	0.0	8	
7							1	0		2	0																		5	5	0	0.0	4	
8					1	0		3	0	1	2		5	0		13	0						1	0	1	0			43	46	2	4.2	13	
9							15	4	1	0	11	1		3	0		9	0	3	0			1	0			1	0	64	59	5	7.8	16	
10		1	0						1	1	6	0			2	0		1	0		4	0		5	1				30	28	2	6.7	10	
11									1	0	1	0				1	0								1	0		1	0	69	68	1	1.4	10
12										1	0														1	0			33	37	1	2.6	4	
13				2	0		1	0	1	0	3	0		4	0		6	0						1	0		1	0	109	104	5	4.6	17	
14		2	0						4	1	1	0	3	0		1	0	3	0					9	0	2	0	11	0	151	150	1	0.7	24
15	2	0	3	0			2	0	8	0	4	0		4	0		1	0	4	0				5	0	2	0	3	0	130	125	2	1.5	25
16									3	0		3	0								1	0						29	29	0	0.0	14		
17							1	0		2	1									2	0					1	0		170	163	2	1.2	11	
18									1	0														1	0				104	104	0	0.0	6	
19												1	0		1	0	1	0											105	104	1	1.0	8	
20									0	1					1	0													74	73	1	1.4	4	
21							1	0		3	2		1	0	1	0				1	0		1	0		2	0		95	93	2	2.1	12	
22								1	0		5	0				1	0											1	0	71	71	0	0.0	9
23	8	0			1	0					4	0			1	0		1	0		2	0						1	0	126	125	1	0.8	12
24									1	0						4	0												59	59	0	0.0	5	
25							3	0				4	0			7	0				1	0						1	0	107	100	1	0.9	12
26						2	0			10	0	2	0		3	0		2	0	1	0			1	0		1	0	13	13	0	0.0	4	
27		1	0			2	0	1	0		1	0														1	0		70	70	0	0.0	25	
28						2	0	1	0		1	0				6	0												47	40	1	2.1	10	
29									1	0			1	0									1	0		1	0		108	103	0	0.0	12	
30									0	1									1	0									69	63	1	1.4	6	
31			1	0	2	0			2	0		1	0				2	0								4	0		145	143	2	1.4	14	
32		95	0					1	0		3	0				6	0			15	0	1	0						123	123	0	0.0	11	
33		90	0						2	2	1	0		1	0		2	0							1	0	2	0		114	112	2	1.8	12
34		1	0	1	0	10	0			3	4		1	0	2	0	1	0			1	0		2	0		1	0	72	69	6	8.3	24	
35						62	0							2	0				1	0							1	0	77	77	0	0.0	9	
36									4	1			1	0															8	7	1	12.5	4	
37							2	0	69	3					1	0													84	81	3	3.0	7	
38			1	0				1	0	44	0			1	0		2	0											53	53	0	0.0	8	
39							7	0	68	1					2	0													82	81	1	1.2	7	
40							4	0	12	2																			21	19	2	0.5	5	
41			1	0			3	0	101	2			1	0											1	0			118	116	2	1.7	10	
42							1	0	37	5																			44	39	5	11.4	3	
43									13	5					1	0													20	15	5	25.0	3	
44									19	2			8	0										1	0		1	0	38	36	2	5.3	0	
45											2	0				2	0									1	0		13	13	0	0.0	8	
46												80	0			2	0								1	0			87	87	0	0.0	7	
47											1	0			2	0											1	0	71	71	0	0.0	6	
48												61	0		1	0										1	0		65	65	0	0.0	5	
49			1	0					1	0				42	0	1	0													43	48	0	0.0	5
50									1	0		1	0		15	0					3	0			11	0	1	0		51	51	0	0.0	11
51							20	12		6	3		7	0		82	0	2	0				1	0						168	150	18	10.7	17
52							17	2		4	1	7	0		4	0		1	0	76	0	2	0					1	0	133	132	3	2.2	19
53							8	1		7	1	5	0		1	0		83	1		1	0							124	121	3	2.4	13	
54		2	0				13	2		8	1	8	0		3	0		94	0		1	0							147	143	4	2.7	18	
55																		59	0										61	61	0	0.0	3	
56							2	0		2	0							12	0										16	16	0	0.0	3	
57									1	0	1	0						37	0							2	0		44	44	0	0.0	7	
58															1	0														37	36	1	2.7	7
59		8	0												2	0			30	0	1	1							117	117				

Marginal Number	SCHOOL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota
	TEXAS	P	F	F	F	F	F	F	F	F	F	F	F	P	F	F	F	F	F	F	P	F	F
61	Baylor University College of Medicine.....	1	0							1	0											1	0
62	University of Texas School of Medicine.....									1	0											1	0
	VERMONT																						
63	University of Vermont College of Medicine....						1	1											1	0		0	1
	VIRGINIA																						
64	Medical College of Virginia.....									1	0												
65	University of Virginia Department of Medicine									0	1												
	WISCONSIN																						
66	Marquette University School of Medicine.....				2	1		1	0				4	0								2	0
67	University of Wisconsin Medical School.....		1	0	3	0							1	0						1	0		
	CANADA																						
68	Dalhousie University Faculty of Medicine.....																						
69	Laval University Faculty of Medicine.....																						
70	McGill University Faculty of Medicine.....				20	0		1	0				2	0					1	0		4	0
71	Queen's University Faculty of Medicine.....																		1	0	1	0	1
72	University of Alberta Faculty of Medicine.....				1	0																	
73	University of Manitoba Faculty of Medicine....																						
74	University of Montreal Faculty of Medicine....																						
75	University of Toronto Faculty of Medicine....												7	0									
76	University of Western Ontario Medical School..									1	0		1	0									
77	Foreign Medical Faculties.....						3	11					0	2	16	3			1	1	1	9	3
78	Unapproved Schools.....		2	1		19	3			1	0		50	0								69	133
79	Totals.....	11	9	68	361	68	60	13	31	96	85	16	445	107	100	85	85	149	31	173	287	216	191
80	Totals—Examined—Passed.....	11	8	68	349	65	44	11	31	92	85	14	442	107	99	85	85	149	29	172	144	216	191
81	Totals—Examined—Failed.....	0	1	0	12	3	16	2	0	4	0	2	3	0	1	0	0	0	2	1	143	0	0
82	Percentage—Failed.....	0.0	11.1	0.0	3.3	4.4	26.7	15.4	0.0	4.2	0.0	12.5	0.7	0.0	1.0	0.0	0.0	0.0	6.5	0.6	49.8	0.0	0.0
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22

P = Passed; F = Failed.

(CONTINUED FROM PAGE 1639)

states. Graduates of the University of California Medical School, University of Georgia School of Medicine, Syracuse University College of Medicine and Woman's Medical College of Pennsylvania were examined in less than five states. Graduates of three

TABLE 5.—Graduates of Canadian Medical Schools Examined for Licensure in the United States During 1939

	Examined	Passed	Failed
Alabama.....	2	2	0
California.....	23	23	0
Colorado.....	1	1	0
Connecticut.....	1	1	0
District of Columbia.....	2	2	0
Florida.....	3	2	1
Illinois.....	14	14	0
Louisiana.....	1	1	0
Maine.....	4	4	0
Maryland.....	1	1	0
Massachusetts.....	6	6	0
Michigan.....	2	2	0
Minnesota.....	8	7	1
Missouri.....	2	2	0
Montana.....	1	1	0
New Hampshire.....	4	4	0
New Jersey.....	3	3	0
New York.....	50	42	8
North Dakota.....	5	5	0
Ohio.....	4	4	0
Pennsylvania.....	9	8	1
Rhode Island.....	1	1	0
Tennessee.....	2	2	0
Vermont.....	1	1	0
Virginia.....	1	1	0
Washington.....	5	5	0
Totals.....	156	145	11

of these schools were examined in four states and those from Syracuse University in three.

One hundred and fifty-six graduates of medical schools in Canada took the test for licensure in twenty-six states (table 5).

The greatest number, seventy-two, represented McGill University Faculty of Medicine, who were examined in twenty-two states; thirty-one graduates of

the University of Toronto Faculty of Medicine in twelve states, while seventeen from Dalhousie University Faculty of Medicine applied for licensure in only two states. The highest percentage of failures was 40, representing Queen's University Faculty of Medicine; of ten examined, six passed and four failed.

Fifteen medical schools had no failures before state licensing boards, namely the Universities of Colorado, Yale, Indiana, Louisiana State, Michigan, Nebraska, Ohio State, Cincinnati, Western Reserve, Oklahoma, Oregon, Pittsburgh, Vanderbilt, Texas and Wisconsin.

Seven graduates of medical schools now extinct were examined in Florida, Massachusetts and Puerto Rico with 28.6 per cent failures, a total of 1,692 graduates of medical schools other than those in the United States and Canada were examined in twenty-six states, Hawaii and Puerto Rico, while 519 unapproved graduates were examined in fourteen states and Puerto Rico, namely Arizona, Colorado, Connecticut, Florida, Illinois, Massachusetts, New Hampshire, New Jersey, Ohio, Oregon, Pennsylvania, Texas, Virginia and Wyoming.

In 1938, 7,455 were examined, of whom 6,583 passed and 872, 11.7 per cent, failed, as compared with 7,753 examined in 1939, of whom 6,489 passed and 1,264, 16.3 per cent, failed. There were 298 more examined than in 1938; ninety-four fewer passed but the failures increased 392. Elsewhere are given figures representing actual licentiates and additions to the medical profession.

GRADUATES OF 1937, 1938 AND 1939 EXAMINED FOR MEDICAL LICENSURE IN 1939

Figures recording graduates of 1937, 1938 and 1939 examined for medical licensure in 1939 are presented in table 4. Altogether 5,819 were examined, of whom 5,376 passed and 443, 7.6 per cent, failed. Of these, 4,943 represented sixty-seven approved medical schools

[illegible]

in the United States, of whom 4,835 passed and 108, 2.2 per cent, failed. One hundred and eleven graduates of nine approved schools in Canada were examined, 107 of whom passed and four, 3.6 per cent, failed. There were 410 recent graduates of medical faculties outside the United States and Canada examined, of whom 228 passed and 182, 44.4 per cent, failed. There were also examined 355 graduates of medical schools not approved by the American Medical Association and graduates of schools of osteopathy, of whom 206 passed and 149, 42 per cent, failed.

TABLE 6.—*Graduates of 1937, 1938 and 1939 Examined for Medical Licensure, 1939*

Graduates of Medical schools in the United States	1937		1938		1939	
	Passed	Failed	Passed	Failed	Passed	Failed
Medical schools in the United States	433	16	1,166	44	3,234	48
Medical schools in Canada....	31	1	43	1	33	2
Foreign faculties of medicine....	136	108	83	69	9	5
Unapproved schools	35	55	21	42	150	52
Totals	637	180	1,313	156	3,426	107

Of the United States schools 2.2 per cent failed, of the Canadian graduates 3.6 per cent failed and of those educated outside the United States and Canada 44.4 per cent failed. Of the United States graduates the school having the highest percentage of failures, 25, was the University of Buffalo School of Medicine, whose graduates were examined in three states. Sixteen per cent of the graduates of the University of Vermont College of Medicine failed, while 12.5 per cent of the graduates of Albany Medical College failed. More than 10 per cent of the graduates of two other schools, Syracuse University College of Medicine and the Hahnemann Medical College of Philadelphia, failed.

Graduates of the first school named failed in three states and the latter in seventeen. Twenty-six schools in the United States had no failures among its recent graduates examined for medical licensure in 1939. Graduates of Rush Medical College and Harvard Medical School were examined in twenty-five states, of Northwestern and Creighton in twenty-four and of Jefferson Medical College in nineteen.

The greatest number examined by any one state was New York, 850; Pennsylvania was second with 530; Illinois examined 445, California 361 and Ohio 316.

More than 100 were examined from eighteen schools, the highest being the 168 graduates of Hahnemann Medical College and Hospital of Philadelphia. Fifty-seven graduates of McGill University Faculty of Medicine were examined in seventeen states, while only one graduate from Laval University and the University of Montreal was examined. Only five graduates of Yale during the years given were examined in four states and thirteen graduates of Duke University School of Medicine were examined in eight states. The majority of the graduates of these two schools obtained the certificate of the National Board of Medical Examiners and received their license to practice by endorsement of this certificate.

The figures shown in the table just described are subdivided by years, giving totals, passed and failed, separately for the graduates of (a) medical schools in the United States, (b) medical schools in Canada, (c) foreign faculties of medicine and (d) unapproved medical schools and osteopaths, and included in table 6. Of the 3,533 graduates of approved medical schools in the United States examined in 1939, 107 failed, while 156 of the 1,469 graduates of 1938 failed and 180 of the 817 graduates of 1937 failed. The greatest percentage of failures was among the unapproved gradu-

In the following tabulation is recorded the number of graduates of 1937, 1938 and 1939, respectively, examined and the results:

Graduates of	Examined	Passed	Percentage Failed
1937.....	817	637	22.0
1938.....	1,469	1,313	10.6
1939.....	3,533	3,426	3.0

FAILURES BEFORE MEDICAL LICENSING BOARDS
BY LICENTIATES OF 1939

In table 8 are presented for each state the number of candidates examined or granted licenses by endorsement or reciprocity and the number licensed after one failure and after two or more failures, these two groups being classified by indication whether the failure or failures have been in the state in which they are receiving a license or elsewhere and also if the failure has been in the state where licensed and elsewhere.

Of the total number examined and endorsed, 9,260, 529 failed, 275 after one examination in the state in which they were licensed in 1939 and seventy elsewhere, while 116 failed more than once in the state awarding the 1939 license, nineteen elsewhere, and forty-nine failed in the state where licensed in 1939 and also elsewhere.

In the computation of this table it was noted that of graduates of unapproved schools licensed in Massachusetts one failed eleven times in the state, one had nine failures, two had seven failures before successfully passing, and two failed eight times, three six times and one five times. Two graduates of faculties of medicine abroad were examined unsuccessfully in Massachusetts five and seven times, respectively, before obtaining a license. A candidate had six failures in California and then secured a license. Another made six unsuccessful attempts in New York. He was a foreign graduate. Five others failed five or more times in New York and elsewhere before receiving a New York license. These five were also graduates from abroad. Two others failed five and six times and then secured licensure in Ohio and New Hampshire, respectively.

Eighteen states licensed physicians in 1939 who never failed a state board examination, while New York licensed 252, New Jersey eighty-two and Massachusetts seventy-one who previously failed. Licensure with failures occurred in thirty-one states and Puerto Rico but, with the exception of Massachusetts, New Jersey and New York, no state licensed more than fifteen.

REGISTRATION BY RECIPROCITY AND ENDORSEMENT

The number of physicians granted licenses to practice medicine and surgery without examination on presentation of satisfactory credentials is given in table 7. There were 2,846 so registered who presented licenses from other states, Canada and foreign countries, the certificate of the National Board of Medical Examiners, one of the government services, or other credentials.

Definite reciprocal relations are reported by twenty-five states. Twenty-five states, including five that have regularly established reciprocal relations, will register licentiates who present credentials which correspond to those required by their respective states at the time such licenses were issued. The medical practice acts of many give the examining board the privilege of using its discretion in determining the acceptability of a candidate. The reciprocity and endorsement policies of the various states, the District of Columbia, Alaska, Hawaii and Puerto Rico are presented in table 9. In

addition there is also indicated whether licenses are granted to diplomates of the National Board of Medical Examiners or to retired officers of the government services. Specific requirements such as professional practice, basic science certificate, oral examination and internship are recorded, as is also the fee demanded. Florida, Idaho, Massachusetts, Rhode Island and Hawaii do not have reciprocal or endorsement arrangements with any state. Massachusetts, Rhode Island and Hawaii, however, will register diplomates of the National Board of Medical Examiners by endorsement. Those desiring licenses by reciprocity or endorsement in Arizona, Arkansas, Colorado, Connecticut, the District of Columbia, Florida, Iowa, Michigan, Minnesota, Nebraska, Oklahoma, Oregon, South Dakota, Wash-

TABLE 8.—Failures Before Medical Licensing Boards by
Licentiates of 1939

	Licenses Issued by Exam- ination, Recipro- city or Endorse- ment	Licensed after One Failure		Licensed after Two or More Failures		
		Failed in State Where Licensed	Else- where	Failed in State Where Licensed	Else- where	Failed in State Where Licensed and Elsewhere
Alabama.....	57	..	1	..	..	..
Arizona.....	22	..	1	..	..	..
Arkansas.....	90	..	..	..	1	..
California.....	623	10	1	2	..	2
Colorado.....	100	3	..	..	..	..
Connecticut.....	120	4	..	2	..	1
Delaware.....	14	..	..	..	1	..
Dist. of Columbia	109	..	..	..	1	1
Florida.....	172	5	2	1	..	..
Georgia.....	128	..	3	..	..	..
Idaho.....	24	..	..	..	..	..
Illinois.....	612	8	1	2	..	..
Indiana.....	182	1	1	..	..	..
Iowa.....	163	1	1	..	..	..
Kansas.....	110	..	..	..	..	..
Kentucky.....	142	..	..	..	..	..
Louisiana.....	94	..	..	..	..	..
Maine.....	58	..	2	..	..	1
Maryland.....	241	4	2	1	..	1
Massachusetts.....	378	17	7	43	4	..
Michigan.....	352	1	..	..	..	..
Minnesota.....	244	1	..	..	..	..
Mississippi.....	57	..	1	..	1	..
Missouri.....	286	..	..	..	..	..
Montana.....	30	..	..	..	..	..
Nebraska.....	94	..	..	..	..	..
Nevada.....	15	..	..	..	..	..
New Hampshire.....	38	..	3	..	2	..
New Jersey.....	398	45	15	1	5	16
New Mexico.....	49	..	1	..	..	..
New York.....	1,439	157	8	61	1	25
North Carolina.....	125	..	..	..	1	..
North Dakota.....	26	..	..	..	..	..
Ohio.....	434	6	3	..	..	1
Oklahoma.....	78	..	..	..	..	..
Oregon.....	55	..	1	..	..	..
Pennsylvania.....	612	6	3	..	..	..
Rhode Island.....	39	..	..	1	1	..
South Carolina.....	60	..	..	..	..	..
South Dakota.....	18	..	..	..	..	..
Tennessee.....	211	..	2	..	..	..
Texas.....	334	4	8	2	..	1
Utah.....	45	..	..	..	..	..
Vermont.....	34	..	..	..	..	..
Virginia.....	179	..	..	..	..	..
Washington.....	106	..	..	..	..	..
West Virginia.....	92	..	1	..	1	..
Wisconsin.....	172	..	..	..	..	..
Wyoming.....	20	..	1	..	..	..
U. S. Terr. and Possessions.....	49	3	1	..	..	..
Totals.....	9,260	275	70	116	19	49

ington and Wisconsin are required to obtain a certificate from the board of examiners in the basic sciences before being eligible for licensure. Other requirements or exemptions are mentioned in the footnotes. Some states also have additional requirements for graduates of schools outside the United States and Canada.

It will be noted in table 7 that New York granted the greatest number of licenses by endorsement in 1939

(415), California the second highest, 241, New Jersey 161, Texas 159, Michigan 144, Ohio 119 and Massachusetts 101. All other states licensed fewer than 100 by this method. The largest group representing the same type of credentials were the 667 diplomates of the National Board of Medical Examiners. More than 100

presented licenses issued in twenty-five states and the National Board. The number of physicians registered in New York on the basis of foreign credentials was only three; it was twenty-one in 1938 and 146 in 1937. In 1938 the New York Board of Regents ruled that all would be required henceforth to pass an examina-

TABLE 9.—Reciprocity and

Compilation of data furnished by state examining boards. This information is not guaranteed, as there may have been

Marginal Number	The Examining Board of	Reciprocity with, or Endorses Certificates Granted by																								Marginal Number						
		Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	
1	Alabama.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
2	Arizona.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
3	Arkansas (regular board).....	+	+	..	+	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
4	California.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
5	Colorado.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5
6	Connecticut (regular board).....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
7	Delaware (regular board).....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7
8	Dist. of Columbia.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8
9	Florida.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
10	Georgia.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
11	Idaho.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	11
12	Illinois.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12
13	Indiana.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
14	Iowa.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14
15	Kansas.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15
16	Kentucky.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16
17	Louisiana (regular board).....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17
18	Maine.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18
19	Maryland (regular board).....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19
20	Massachusetts.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20
21	Michigan.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	21
22	Minnesota.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22
23	Mississippi.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23
24	Missouri.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24
25	Montana.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25
26	Nebraska.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	26
27	Nevada.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	27
28	New Hampshire.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	28
29	New Jersey.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	29
30	New Mexico.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	30
31	New York.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31
32	North Carolina.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32
33	North Dakota.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33
34	Ohio.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	34
35	Oklahoma.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	35
36	Oregon.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	36
37	Pennsylvania.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	37
38	Rhode Island.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	38
39	South Carolina.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	39
40	South Dakota.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	40
41	Tennessee.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	41
42	Texas.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	42
43	Utah.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	43
44	Vermont.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44
45	Virginia.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	45
46	Washington.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	46
47	West Virginia.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47
48	Wisconsin.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	48
49	Wyoming.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49
50	Alaska.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	50
51	Hawaii.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	51
52	Puerto Rico.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	52

Some states have additional requirements for graduates of schools outside the United States and Canada.

1. 1st P, first papers required; +, full citizenship required.
2. In most cases there is a small additional recording or registration fee.
3. If state of original license grants similar privileges.
4. Internship accepted in lieu of one year's practice.
5. Professional practice required.
6. No professional practice required.
7. Just preceding application.
8. No basic science reciprocity—examination must be within the state.
9. Basic science certificate required either by reciprocity or examination in addition to basic science subjects of National Board.
10. Reserve officers not eligible.

11. Applicant's diplomate certificate must be dated not less than one year prior to the filing date in California of an application; applicant must also have been a resident of some state or territory of the United States for a period of at least one year after the date of his diplomate certificate.

12. Oral examination required when original license is ten or more years old.

13. Applicant must have resided in the state used as basis of application for one year after date on said certificate.

14. .. her state for five years.

15. .. riod of three years immediately preceding ..

16. .. tion required.

17

holding credentials from the U. S. Navy were given the right to practice without the requirement of an examination, as follows: California licensed eleven, Texas one, Virginia three and Wisconsin one. Two, one in California and in Texas, respectively, were certified on credentials from the U. S. Army and three,

changes of which this office has not been advised. For an authentic statement write directly to the medical board.

[illegible]

33. Reciprocity applicants only.
34. Supplemental examination required in certain cases when accepting the examination of a state with whom reciprocal relations have not been established.
35. May be licensed after a special (written) supplemental examination.
36. Fee for license on basis of National Board certificate \$25.
37. For matriculants after Oct. 17, 1937.
38. After July 1, 1939.
39. While on active duty only.
40. Permanent license withheld until completion of citizenship.
41. Graduates of foreign medical schools effective Sept. 15, 1935.
- Canadian schools exempted effective Sept. 19, 1939.
42. Graduates of foreign medical schools are not accepted by reciprocity.

in California, Illinois and North Carolina, by endorsement of connections with the United States Public Health Service.

Twenty-one physicians were registered on the basis of commissions in the government services. Sixteen

Not included in the table are twenty osteopaths licensed by the board of medical examiners in three

(CONTINUED ON PAGE 1650)

— Investment, 1939

[illegible]

(CONTINUED FROM PAGE 1647)

states, namely one in Oregon and two in Wyoming licensed to practice osteopathy and surgery and seventeen in Texas granted the right to practice medicine and surgery.

Of the five homeopathic boards in existence—Arkansas, Connecticut, Delaware, Louisiana and Maryland—

TABLE 11.—*Licentiatees Representing Additions to the Medical Profession, 1935-1939*

Year	Examination	Reciprocity and Endorsement	Total
1935.....	5,099	411	5,510
1936.....	5,547	628	6,175
1937.....	5,812	608	6,420
1938.....	5,756	497	6,253
1939.....	5,583	460	6,043
Totals.....	27,797	2,604	30,401

only two issued licenses by endorsement, Louisiana and Maryland, which licensed one each. The Eclectic Board in Arkansas did not register any one.

TABLE 12.—*Licentiatees Representing Additions to the Medical Profession, 1939*

	Examination	Reciprocity and Endorsement	Total
Alabama.....	4	4	8
Arizona.....	4	..	4
Arkansas.....	68	1	69
California.....	340	11	351
Colorado.....	66	4	70
Connecticut.....	36	22	58
Delaware.....	8	..	8
District of Columbia.....	30	16	46
Florida.....	38	..	38
Georgia.....	86	1	87
Idaho.....	2	..	2
Illinois.....	478	7	485
Indiana.....	112	1	113
Iowa.....	85	1	86
Kansas.....	83	1	84
Kentucky.....	85	2	87
Louisiana.....	68	..	68
Maine.....	31	2	33
Maryland.....	180	11	191
Massachusetts.....	202	78	280
Michigan.....	224	10	234
Minnesota.....	147	7	154
Mississippi.....	22	..	22
Missouri.....	203	7	210
Montana.....	6	1	7
Nebraska.....	78	1	79
Nevada.....	3	..	3
New Hampshire.....	7	7	14
New Jersey.....	202	8	210
New Mexico.....	2	3	5
New York.....	982	180	1,162
North Carolina.....	57	8	65
North Dakota.....	7	..	7
Ohio.....	354	3	357
Oklahoma.....	36	..	36
Oregon.....	23	6	29
Pennsylvania.....	468	8	476
Rhode Island.....	16	8	24
South Carolina.....	43	..	43
South Dakota.....	6	..	6
Tennessee.....	178	1	179
Texas.....	193	17	211
Utah.....	16	1	17
Vermont.....	16	1	17
Virginia.....	110	7	117
Washington.....	45	5	50
West Virginia.....	15	2	17
Wisconsin.....	105	2	107
Wyoming.....	2	1	3
U. S. Territories and Possessions *.....	8	6	14
Totals.....	5,583	460	6,043

* Canal Zone, Hawaii and Puerto Rico.

Diplomates of the National Board of Medical Examiners were registered in forty-two states and in Hawaii.

New York had the greatest number of its licentiatees registered in any state, sixty-eight, who were given the right to practice in New Jersey. Arizona, Delaware,

Florida, Idaho, Montana, New Hampshire, New Mexico, North Dakota, Rhode Island, South Dakota, Utah, Vermont, Washington and Wyoming had less than ten

TABLE 13.—*Licentiatees Representing Additions to the Medical Profession Grouped in Geographic Divisions, 1939*

	Examination	Reciprocity and Endorsement	Total
New England			
Maine.....	31	2	33
New Hampshire.....	7	7	14
Vermont.....	16	1	17
Massachusetts.....	202	78	280
Rhode Island.....	16	8	24
Connecticut.....	36	22	58
	308	118	426
Middle Atlantic			
New York.....	982	180	1,162
New Jersey.....	202	8	210
Pennsylvania.....	468	8	476
	1,652	196	1,848
East North Central			
Ohio.....	354	3	357
Indiana.....	112	1	113
Illinois.....	478	7	485
Michigan.....	224	10	234
Wisconsin.....	105	2	107
	1,273	23	1,296
West North Central			
Minnesota.....	147	7	154
Iowa.....	85	1	86
Missouri.....	203	7	210
North Dakota.....	7	..	7
South Dakota.....	6	..	6
Nebraska.....	78	1	79
Kansas.....	83	1	84
	609	17	626
South Atlantic			
Delaware.....	8	..	8
Maryland.....	180	11	191
District of Columbia.....	30	16	46
Virginia.....	110	7	117
West Virginia.....	15	2	17
North Carolina.....	57	8	65
South Carolina.....	43	..	43
Georgia.....	86	1	87
Florida.....	38	..	38
	567	45	612
East South Central			
Kentucky.....	85	2	87
Tennessee.....	178	1	179
Alabama.....	4	4	8
Mississippi.....	22	..	22
	289	7	296
West South Central			
Arkansas.....	68	1	69
Louisiana.....	68	..	68
Oklahoma.....	36	..	36
Texas.....	196	15	211
	368	16	384
Mountain			
Montana.....	6	1	7
Idaho.....	2	..	2
Wyoming.....	2	1	3
Colorado.....	66	4	70
New Mexico.....	2	3	5
Arizona.....	4	..	4
Utah.....	16	1	17
Nevada.....	3	..	3
	101	10	111
Pacific			
Washington.....	45	5	50
Oregon.....	23	6	29
California.....	340	11	351
	408	22	430
Territories and Possessions			
Canal Zone.....	..	2	2
Hawaii.....	8	4	12
Puerto Rico.....	5	..	5
	8	6	14
Totals.....	5,583	460	6,043

of their licentiatees endorsed to other states. Nevada had no physicians endorsed.

Delaware, Florida, Idaho and Wyoming had only one endorsed, and Arizona, Montana, New Mexico, North Dakota and Rhode Island had three each.

Included among United States territories and possessions are Alaska, the Canal Zone, Hawaii, Puerto Rico and the Virgin Islands.

A total of 2,846 physicians secured licenses by this method in 1939.

The physicians licensed by reciprocity and endorsement last year and, in addition, twenty osteopaths so licensed by medical examining boards are recorded by school of graduation and state or territory where licensed in table 10. All the four year medical schools in the United States (sixty-seven) and nine in Canada

several osteopathic schools were licensed without examination. Graduates of thirty-three schools now extinct were also represented.

Of the 2,866 candidates licensed by reciprocity and endorsement, 2,649 were graduates of sixty-seven approved medical schools in the United States, forty-two were graduates of nine approved medical schools in Canada, eighty-nine graduates of foreign faculties of medicine, forty-six of medical schools now extinct, twenty graduates of unapproved medical schools and twenty osteopaths.

TABLE 14.—*Licentiatees Representing Additions to the Medical Profession Classified by Schools, 1939*

School	Examination	Reciprocity and Endorsement	Total	School	Examination	Reciprocity and Endorsement	Total
ARKANSAS				NEW YORK—Continued			
University of Arkansas School of Medicine.....	74	..	74	Long Island College of Medicine.....	80	7	87
CALIFORNIA				New York Medical College, Flower and Fifth Avenue Hospitals.....	19	45	67
College of Medical Evangelists.....	77	20	97	New York University College of Medicine.....	113	13	126
Stanford University School of Medicine.....	53	2	55	Syracuse University College of Medicine.....	37	..	37
University of California Medical School.....	69	2	62	University of Buffalo School of Medicine.....	18	3	21
University of Southern California School of Medicine.....	42	..	42	University of Rochester School of Medicine and Dentistry.....	38	5	43
COLORADO				NORTH CAROLINA			
University of Colorado School of Medicine.....	44	2	46	Duke University School of Medicine.....	15	14	29
CONNECTICUT				OHIO			
Yale University School of Medicine.....	6	41	47	Ohio State University College of Medicine.....	80	1	81
DISTRICT OF COLUMBIA				University of Cincinnati College of Medicine.....	64	1	65
George Washington University School of Medicine.....	50	13	63	Western Reserve University School of Medicine.....	62	1	63
Georgetown University School of Medicine.....	53	28	83	OKLAHOMA			
Howard University College of Medicine.....	21	..	21	University of Oklahoma School of Medicine.....	39	..	39
GEORGIA				OREGON			
Emory University School of Medicine.....	50	..	50	University of Oregon Medical School.....	46	1	47
University of Georgia School of Medicine.....	33	..	33	PENNSYLVANIA			
ILLINOIS				Hahnemann Medical College and Hospital of Phila... ..	120	1	121
Loyola University School of Medicine.....	109	2	111	Jefferson Medical College of Philadelphia.....	124	3	127
Northwestern University Medical School.....	128	9	137	Temple University School of Medicine.....	114	2	116
University of Chicago, Rush Medical College.....	120	12	132	University of Pennsylvania School of Medicine.....	138	7	145
University of Chicago, The School of Medicine.....	30	4	34	University of Pittsburgh School of Medicine.....	59	..	59
University of Illinois College of Medicine.....	138	1	139	Woman's Medical College of Pennsylvania.....	15	..	15
INDIANA				SOUTH CAROLINA			
Indiana University School of Medicine.....	104	..	104	Medical College of the State of South Carolina.....	41	..	41
IOWA				TENNESSEE			
State University of Iowa College of Medicine.....	80	2	82	Melvin Medical College.....	32	..	32
KANSAS				University of Tennessee College of Medicine.....	100	..	100
University of Kansas School of Medicine.....	70	..	70	Vanderbilt University School of Medicine.....	48	1	49
KENTUCKY				TEXAS			
University of Louisville School of Medicine.....	89	1	90	Baylor University College of Medicine.....	68	..	68
LOUISIANA				University of Texas School of Medicine.....	90	..	90
Louisiana State University School of Medicine.....	64	..	64	VERMONT			
Tulane University School of Medicine.....	36	1	37	University of Vermont College of Medicine.....	23	11	34
MARYLAND				VIRGINIA			
Johns Hopkins University School of Medicine.....	60	12	72	Medical College of Virginia.....	55	1	56
University of Maryland School of Medicine and College of Physicians and Surgeons.....	98	..	98	University of Virginia Department of Medicine.....	54	..	54
MASSACHUSETTS				WISCONSIN			
Boston University School of Medicine.....	13	29	42	Marquette University School of Medicine.....	60	3	63
Harvard Medical School.....	80	46	126	University of Wisconsin Medical School.....	58	..	58
Tufts College Medical School.....	46	44	90	CANADA			
MICHIGAN				Dalhousie University Faculty of Medicine.....	15	1	16
University of Michigan Medical School.....	102	2	104	Laval University Faculty of Medicine.....	1	..	1
Wayne University College of Medicine.....	72	..	72	McGill University Faculty of Medicine.....	53	4	57
MINNESOTA				Queen's University Faculty of Medicine.....	5	..	5
University of Minnesota Medical School.....	127	1	128	University of Alberta Faculty of Medicine.....	1	..	1
MISSOURI				University of Manitoba Faculty of Medicine.....	6	..	6
St. Louis University School of Medicine.....	124	9	133	University of Montreal Faculty of Medicine.....	1	..	1
Washington University School of Medicine.....	101	2	103	University of Toronto Faculty of Medicine.....	23	1	24
NEBRASKA				University of Western Ontario Medical School.....	13	..	13
Creighton University School of Medicine.....	62	1	63	Foreign Medical Faculties.....	733	8	741
University of Nebraska College of Medicine.....	68	1	69	Unapproved Schools.....	257	15	272
NEW YORK				Totals.....	5,383	460	6,043
Albany Medical College.....	6	4	10				
Columbia University College of Physicians and Surgeons.....	80	11	91				
Cornell University Medical College.....	53	6	59				

were represented, as well as graduates of medical schools now extinct, unapproved schools in the United States and faculties of medicine abroad. The largest number of graduates of any one school were from Harvard Medical School, 108, who were licensed in thirty states. St. Louis University had eighty-six licensed by this method in twenty-one states, Rush Medical College eighty-two in twenty-seven states and the University of Tennessee College of Medicine eighty-one in twenty-three states. Graduates of twenty-nine faculties of medicine in Europe, two licensing corporations of Great Britain, two unapproved schools and

LICENTIATES REPRESENTING ADDITIONS TO THE
MEDICAL PROFESSION

Licentiatees representing additions to the medical profession during 1939 are recorded by states in table 12. The figures represent candidates examined in 1939 and licensed; also those examined in previous years whose licenses were withheld for lack of internship, citizenship, and so on, and issued in 1939, and those without previous state license who were during the year certified on the basis of the certificate of the National Board of Medical Examiners, government services, Canadian and foreign credentials. In the

main, however, they represent recent graduates. Altogether, 6,043 were added to the profession. The number removed by death annually approximates 4,000. It would appear, therefore, that about 2,000 were added to the medical profession in 1939. While it is not certain that all those licensed are in practice, it may be assumed that the great majority are. It is interesting to note that, of 9,260 licenses issued throughout the year, 6,043 are actual additions to the medical profession. The largest number in any one state added to the profession was in New York, 1,162; Illinois added 485 and Pennsylvania 476. More than 300 received their first license in California and Ohio. The physician population of Massachusetts, Michigan, Missouri, New Jersey and Texas was increased by between 200 and 300. Indiana, Maryland, Minnesota, Tennessee, Virginia and Wisconsin increased their population of physicians by between 100 and 200. Thirty-two states, the District of Columbia, the Canal Zone, Hawaii and Puerto Rico added less than 100. Of the licentiates forming additions to the medical profession last year, 5,583 secured this privilege by examination and 460 by the endorsement of credentials. Those licensed by endorsement consist of a few licensed on foreign credentials and to a large extent diplomates of the National Board of Medical Examiners.

Figures for four previous years and 1939 are shown in table 11 for comparison.

In 1935 there were 5,099 added by means of examination and 411 by endorsement of credentials, a total of 5,510. In 1936 there were 665 more added than in 1935; in 1937, 245 more than in 1936, 910 more than in 1935. In 1938 there were 167 fewer than in 1937 but seventy-eight more than in 1936 and 743 more than in 1935. In 1939 again 210 fewer physicians were added as compared with 1938 and also fewer than any year except 1935, in which year 533 less were licensed. Fourteen physicians were added in the Canal Zone, Hawaii and Puerto Rico.

Table 13 records increases in the physician population grouped in nine geographic divisions, namely the New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain and Pacific states and the territories and possessions. The largest group, 1,848, was added in the Middle Atlantic states, the East North Central group had a total of 1,296, the West North Central 626, South Atlantic 612, the Pacific states 430, New England 426, West South Central 384, East South Central 296 and the Mountain states 111. Two were added in the Canal Zone, seven in Hawaii and five in Puerto Rico. Figures for 1938 are shown here for comparison.

States	1938	1939
New England.....	407	426
Middle Atlantic.....	1,905	1,848
East North Central.....	1,239	1,296
West North Central.....	605	626
South Atlantic.....	658	612
East South Central.....	325	296
West South Central.....	492	384
Mountain.....	118	111
Pacific.....	477	430
Territories and Possessions.....	27	14
Totals.....	6,253	6,043

In table 14 those representing additions to the medical profession are arranged by schools; the same as those examined are listed in table 2, existing approved medical schools in the United States and Canada, foreign faculties of medicine and unapproved schools.

The 6,043 physicians representing additions to the medical profession included graduates from sixty-seven approved medical schools of the United States, nine approved schools in Canada, and others. The greatest numbers from any one school were 159 from the University of Illinois College of Medicine, 145 from the University of Pennsylvania School of Medicine and 137 from Northwestern University Medical School. Of the United States schools the Albany Medical College had the fewest, ten, while only one each was represented by the Canadian medical schools, Laval, Alberta and Montreal. McGill University Faculty of Medicine added fifty-seven of its graduates to the physician population of the United States. From the United States schools

TABLE 15.—Requirements of Preliminary Training by Medical Licensing Boards

Two Years of College		
Alabama	Louisiana	Oregon
Alaska	Maine	Pennsylvania
Arizona	Maryland	Puerto Rico
Arkansas	Michigan	Rhode Island
Colorado	Minnesota	South Carolina
Delaware	Mississippi	South Dakota
District of Columbia	Montana	Tennessee
Florida	Nevada	Texas
Georgia	New Hampshire	Utah
Hawaii	New Jersey	Vermont
Idaho	New Mexico	Virginia
Illinois	New York	Washington
Indiana	North Carolina	West Virginia
Iowa	North Dakota	Wisconsin
Kansas	Ohio	Wyoming
Kentucky	Oklahoma	
One Year of College		
California	Connecticut	
High School Graduation or Its Equivalent		
Massachusetts	Missouri	Nebraska

there were 4,455 graduates added to the profession by examination and 431 by reciprocity or endorsement of credentials, a total of 4,886. From the Canadian schools 124 were added, by examination 118 and by reciprocity or endorsement six. There were 761 graduates of foreign faculties of medicine and 272 unapproved graduates. Altogether there were 5,583 graduates of all schools examined and 460 were licensed by reciprocity or endorsement, a total of 6,043.

REQUIREMENTS OF PRELIMINARY TRAINING BY MEDICAL LICENSING BOARDS

The minimum requirement for admission to approved medical schools since 1918 has been two years of college training which include English and theoretical and practical courses in physics, biology and general and organic chemistry. Since 1938, three years or more in college has been recommended. With but five exceptions, namely California, Connecticut, Massachusetts, Missouri and Nebraska, the state licensing boards also exact the two year requirement. The law in the state of Massachusetts will change in 1941. Although their statutes do not conform with the two year college prerequisite, these states with the exception of Massachusetts do not license other than graduates of approved schools (table 15). Alaska, Hawaii and Puerto Rico likewise require two years of preliminary training.

REQUIRED HOSPITAL INTERNSHIPS

The medical schools and licensing boards requiring a hospital internship for the M.D. degree and state licensure, respectively, are shown in tables 16 and 17.

Twenty-two states, the District of Columbia, Alaska, Hawaii and Puerto Rico require that all applicants for licensure possess a hospital internship. The first state exacting this requirement was Pennsylvania in 1914. In addition, other states require the internship of gradu-

TABLE 16.—*Internship Required by Medical Schools*

University of California Medical School
College of Medical Evangelists
University of Southern California School of Medicine
Stanford University School of Medicine
Loyola University School of Medicine
Northwestern University Medical School
University of Illinois College of Medicine
Louisiana State University School of Medicine
Wayne University College of Medicine
University of Minnesota Medical School
Duke University School of Medicine *
University of Cincinnati College of Medicine
Marquette University School of Medicine
University of Manitoba Faculty of Medicine
Dalhousie University Faculty of Medicine
McGill University Faculty of Medicine
University of Montreal Faculty of Medicine

* Requires a two year internship.

TABLE 17.—*Internship Required by Medical Licensing Boards of All Candidates **

Alabama	Louisiana	Rhode Island
Alaska	Michigan	South Dakota
Arizona	New Hampshire	Utah
Delaware	New Jersey	Vermont
District of Columbia	North Dakota	Washington
Hawaii	Oklahoma	West Virginia
Idaho	Oregon	Wisconsin
Illinois	Pennsylvania	Wyoming
Iowa	Puerto Rico	

* In addition some states require the Internship of graduates of medical faculties abroad and reciprocity or endorsement applicants. See tables 6 and 23.

ates of faculties of medicine abroad and reciprocity or endorsement applicants.

Thirteen schools in the United States and four in Canada exact the internship requisite. A few of the schools will accept research or other clinical work in lieu of the internship.

CANDIDATES EXAMINED, 1935-1939

In table 18 are listed the number of candidates examined in the various states, territories and possessions in the five year period from 1935 to 1939 inclusive, showing those who passed and failed. In five years 4,985 were tested in New York and passed, 2,595 in Pennsylvania, 2,395 in Illinois, 1,830 in California, 1,665 in Ohio, 1,256 in Massachusetts, 1,136 in Michigan, 1,118 in New Jersey, and 1,019 in Maryland and Minnesota. Thirty-one states licensed less than 500 and eleven less than 100. The smallest number, ten, passed the examinations in New Mexico.

The percentage of candidates who failed in the examinations in the past five years is given in the last column. The percentage of failures in all states has increased from 9.1 in 1935 to 16.3 in 1939. In the five year period, 48.2 per cent of the applicants failed in Massachusetts. The high percentage in this state is due to the fact that by law the licensing board is required to admit to its examination the graduates of unapproved schools, many of whom repeatedly fail. Connecticut had a failure percentage of 28.1 in five years and New York 26.5. The high percentage in this state is occasioned by the fact that New York admits a great many graduates of foreign medical schools to its licensing examinations. The third highest proportion of failures was in Florida with 18.2. Florida has

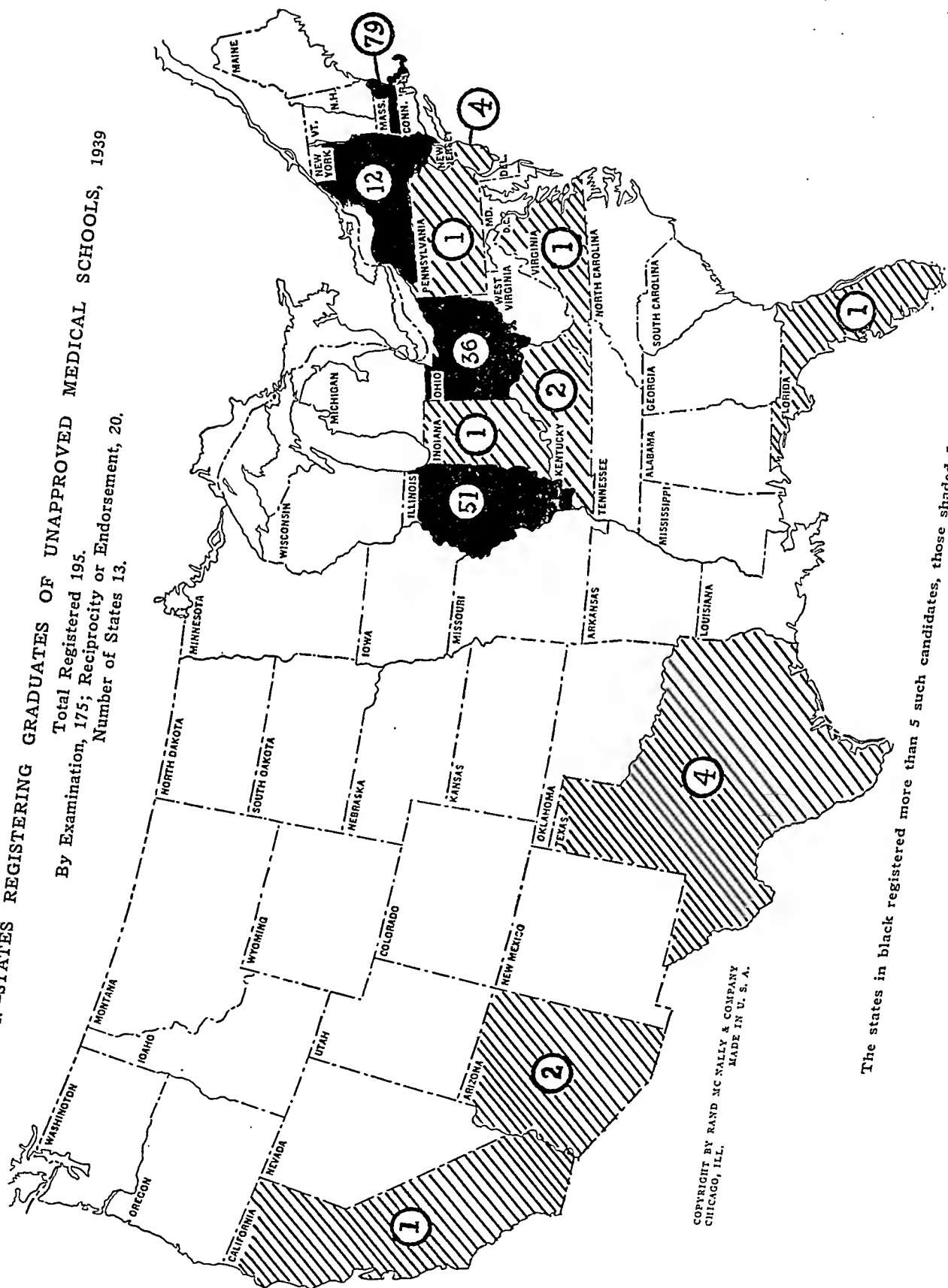
no reciprocal relations with any state, all applicants being required to take the licensing examination. Graduates of earlier years experience difficulty in passing examinations. On the other hand, Arkansas, Nebraska, New Mexico, North Carolina, Oklahoma and Oregon—six states—had no failures. Alabama, California, Colorado, the District of Columbia, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Missouri, Montana, New Hampshire, Ohio, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, Vermont, Virginia, Washington, West Virginia and Wisconsin—twenty-seven states—had less than 5 per cent. Of these thirteen failed less than 1 per cent.

A total of 35,890 candidates were examined in the five years from 1935 to 1939 inclusive, of whom 31,746

TABLE 18.—*Candidates Examined, 1935-1939*

	1935		1936		1937		1938		1939		Totals for 5 Years	
	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed
Alabama.....	37	0	23	4	26	1	29	0	14	0	129	5
Arizona.....	8	2	26	9	14	2	15	0	11	1	74	14
Arkansas.....	42	0	46	0	48	0	72	0	68	0	276	0
California.....	328	14	369	18	349	20	402	15	382	20	1,830	87
Colorado.....	59	1	79	1	76	3	78	3	69	3	361	11
Connecticut.....	63	13	76	30	80	21	73	24	58	47	345	185
Delaware.....	13	5	17	0	14	2	14	0	11	2	69	0
Dist. Columbia..	43	1	32	1	41	0	33	0	54	0	203	2
Florida.....	135	24	154	44	164	38	158	41	172	27	778	174
Georgia.....	88	2	89	0	83	0	72	0	90	0	422	2
Idaho.....	7	1	13	0	20	0	28	0	24	8	92	0
Illinois.....	423	10	471	6	458	5	490	12	523	18	2,395	51
Indiana.....	115	4	118	0	123	2	108	1	108	0	572	7
Iowa.....	77	1	103	0	88	0	94	11	101	2	466	14
Kansas.....	95	0	96	0	82	0	93	1	85	0	431	1
Kentucky.....	61	0	84	0	61	1	61	1	88	0	415	2
Louisiana.....	184	0	123	1	173	1	184	2	153	0	777	4
Maine.....	45	1	53	0	58	2	39	7	42	6	237	16
Maryland.....	194	28	202	34	209	27	227	38	187	16	1,019	143
Massachusetts....	199	239	271	239	302	218	207	220	277	257	1,256	1,173
Michigan.....	244	1	238	0	211	1	226	1	217	0	1,136	3
Minnesota.....	173	0	191	1	210	0	219	2	217	1	1,019	4
Mississippi.....	30	1	22	4	22	2	31	1	21	0	126	8
Missouri.....	214	6	202	3	168	12	174	3	211	0	969	26
Montana.....	8	0	15	0	4	1	11	0	11	0	49	1
Nebraska.....	99	0	75	0	79	0	85	0	78	0	407	0
Nevada.....	3	1	0	0	5	0	5	0	4	0	17	1
New Hampshire....	5	0	24	0	18	0	17	0	14	2	78	2
New Jersey.....	182	5	168	6	250	23	281	53	237	111	1,118	208
New Mexico.....	1	0	3	0	2	0	2	0	2	0	10	0
New York.....	579	195	932	249	1,072	291	1,078	372	1,024	694	4,985	1,801
North Carolina....	63	0	64	0	83	0	83	0	57	0	351	0
North Dakota....	14	1	14	0	13	0	15	2	17	1	73	4
Ohio.....	293	3	312	2	347	5	342	11	369	15	1,665	36
Oklahoma.....	62	0	70	0	49	0	46	0	43	0	270	0
Oregon.....	53	0	48	0	58	0	53	0	26	0	240	0
Pennsylvania.....	464	6	541	1	529	4	512	0	549	11	2,595	31
Rhode Island.....	43	4	22	7	38	7	26	1	25	0	164	19
South Carolina....	49	0	32	0	46	1	39	1	48	0	214	2
South Dakota....	20	0	15	0	17	2	8	0	15	0	75	2
Tennessee.....	181	1	178	1	208	1	179	3	193	0	939	6
Texas.....	188	4	178	19	181	19	200	26	208	15	955	83
Utah.....	20	1	23	0	10	0	12	0	17	0	82	1
Vermont.....	26	0	35	0	26	0	26	1	17	0	133	1
Virginia.....	109	1	110	0	150	2	127	0	113	1	609	4
Washington.....	44	0	58	1	57	0	72	0	59	1	299	2
West Virginia....	38	0	59	0	60	1	65	1	33	0	255	2
Wisconsin.....	111	0	112	1	118	0	114	0	111	0	566	1
Wyoming.....	3	0	1	0	2	1	7	0	8	1	21	2
U. S. Terr. and Possessions...	40	6	21	12	40	4	34	9	30	4	163	55
Totals—Examined	6,436		6,915		7,331		7,455		7,753		35,890	
Passed.....	5,852		6,221		6,601		6,583		6,459		31,746	
Failed.....	584		694		730		872		1,294		4,144	
Percentage—Failed	9.1		10.0		10.0		11.7		16.3		11.5	

passed and 4,144, 11.5 per cent, failed. These figures represent examinations given and not individuals. A candidate who fails more than once in a given year is counted as only one failure, but should be fail in one of the succeeding years in another state he is counted in that year also. Likewise, if a candidate fails and later passes, whether in the same or in a later year, he is



The states in black registered more than 5 such candidates, those shaded 5 or less.

counted as failed and passed. It seems likely that with 4,144 failures who apply for examinations and physicians who apply for licensure in more than one state, approximately 32,000 individuals were examined. This figure gives a fair estimate of the number of physicians added to the profession each year. On page 1650 will be found a table giving exact figures for the period 1935 to 1939 inclusive.

REGISTRATION, 1904-1939

A study of totals and percentages for thirty-six years (1904-1939) is presented in table 19. The number who passed in 1939 was ninety-four less than in 1938 but 268 more than in 1936 and 796 more than in 1904. The number registered without examination, 2,866, was eighty-one less than in 1938. Contrasting these figures with those for 1904 will show the great use being made of this system of licensure. By both methods, examination and endorsement of credentials, 9,355 were registered, 175 less than in 1938. The number registered in

TABLE 19.—Registration, 1904-1939

Year	All Candidates Examined		Percentage Failed	Registered Without Examination	Total Regis- tered
	Examined	Passed			
1904.....	7,056	5,693	19.3	1,004	6,697
1905.....	7,178	5,688	20.8	394	6,082
1906.....	8,040	6,373	20.7	1,502	7,875
1907.....	7,279	5,731	21.3	1,427	7,158
1908.....	7,775	6,039	21.7	1,284	7,323
1909.....	7,295	5,865	19.6	1,381	7,246
1910.....	7,010	5,718	18.4	1,640	7,358
1911.....	6,904	5,582	19.8	1,243	6,825
1912.....	6,880	5,467	20.5	1,272	6,739
1913.....	6,453	5,253	18.6	1,292	6,545
1914.....	5,570	4,370	21.5	1,430	5,818
1915.....	5,334	4,507	15.5	1,399	5,906
1916.....	4,878	4,131	14.9	1,333	5,504
1917.....	4,753	4,054	14.1	1,360	5,444
1918.....	3,666	3,183	13.2	1,047	4,230
1919.....	4,750	4,074	14.2	2,545	6,619
1920.....	4,796	4,062	15.3	2,538	6,620
1921.....	4,825	4,223	12.4	2,166	6,414
1922.....	4,081	3,539	12.2	2,073	5,612
1923.....	4,726	4,027	14.8	2,403	6,430
1924.....	5,399	4,764	11.8	1,919	6,673
1925.....	5,929	5,447	9.2	1,860	7,307
1926.....	5,767	5,311	7.9	1,934	7,265
1927.....	5,384	4,997	7.2	2,174	7,171
1928.....	5,454	5,056	6.7	2,228	7,314
1929.....	5,627	5,230	6.2	2,420	7,700
1930.....	5,563	5,247	5.7	2,366	7,613
1931.....	5,609	5,261	6.2	2,211	7,474
1932.....	5,666	5,238	7.6	1,884	7,122
1933.....	5,670	5,241	7.6	1,989	7,230
1934.....	6,140	5,624	8.4	2,160	7,784
1935.....	6,436	5,852	9.1	2,195	8,047
1936.....	6,915	6,221	10.0	2,770	8,991
1937.....	7,331	6,601	10.0	3,191	9,795
1938.....	7,455	6,583	11.7	2,947	9,530
1939.....	7,753	6,489	16.3	2,866	9,355

1937, 9,795, represented the largest number of candidates registered in thirty-six years. Of those examined in 1939, 16.3 per cent failed as compared with 21.7 per cent in 1908. While these figures represent those registered in the years given, they do not in all states represent the number licensed in a given year. Licenses are withheld in many states, as indicated in the text describing table 1.

There has been no marked increase or decrease in the total number of candidates registered from 1904 to 1933, but from 1934 to 1937 the number registered has been markedly increasing although there was a decrease in 1938 and a further decrease in 1939. However, the number licensed without examination since 1906 has been increasing owing to the almost universal recognition of the certificate of the National Board of Medical Examiners. The decrease in the number registered in 1918 was due to the sudden withdrawal of physicians and recent graduates from civilian life.

Again in 1922 there was a notable reduction, this figure resulting from the small number that began the study of medicine in 1918.

There was a decrease of ninety-four in the number registered by examination in 1939 and a decrease of eighty-one in the number registered by reciprocity or endorsement.

TABLE 20.—Graduates of Approved Schools and Others Registered, 1922-1939

Year	Graduates of Approved Schools		Others		Totals
	Number	Per Cent	Number	Per Cent	
1922.....	4,519	80.5	1,093	19.5	5,612
1923.....	5,196	80.8	1,234	19.2	6,430
1924.....	5,686	85.2	987	14.8	6,673
1925.....	6,313	86.4	994	13.6	7,307
1926.....	6,441	88.7	824	11.3	7,265
1927.....	6,410	89.4	761	10.6	7,171
1928.....	6,585	90.1	729	9.9	7,314
1929.....	7,003	91.0	697	9.0	7,700
1930.....	7,011	92.1	602	7.9	7,613
1931.....	6,932	92.8	542	7.2	7,474
1932.....	6,675	93.7	447	6.3	7,122
1933.....	6,774	93.7	456	6.3	7,230
1934.....	7,170	92.1	614	7.9	7,784
1935.....	7,362	91.5	685	8.5	8,047
1936.....	7,925	88.2	1,063	11.8	8,991
1937.....	8,380	85.6	1,415	14.4	9,795
1938.....	8,303	87.1	1,227	12.9	9,530
1939.....	8,061	86.2	1,294	13.8	9,355

The total number examined was 278 more than in 1938, while the number passed decreased. The increase in failures is largely the failure of many of the graduates of unapproved schools, osteopaths granted medical privileges, and foreign graduates to pass the test on the first try. This is further outlined in subsequent tables.

TABLE 21.—Graduates of Unapproved Medical Schools Registered, 1934-1939

	Examination						Reciprocity and Endorsement						Total
	1934	1935	1936	1937	1938	1939	1934	1935	1936	1937	1938	1939	
Arizona.....	0	0	0	2	1	2	0	0	0	0	0	0	5
Arkansas.....	1	0	0	0	1	0	0	0	0	0	1	0	3
California.....	1	1	0	0	0	0	0	2	0	0	0	1	5
Florida.....	1	1	1	2	2	1	0	0	0	0	0	0	8
Idaho.....	0	0	0	0	0	0	1	0	0	0	0	0	1
Illinois.....	37	67	84	82	60	51	0	0	0	0	0	0	377
Indiana.....	0	1	0	0	0	0	0	0	0	0	3	1	5
Kansas.....	1	0	0	0	0	0	0	0	0	0	0	0	1
Kentucky.....	1	1	0	0	0	0	0	0	2	2	1	2	9
Massachusetts.....	51	26	77	97	58	79	0	0	0	0	0	0	391
Mississippi.....	1	0	0	0	0	0	1	0	0	0	0	0	2
Missouri.....	0	0	0	0	0	0	0	2	0	0	1	0	3
Nebraska.....	0	0	0	0	0	0	0	0	0	1	0	0	1
New Jersey.....	0	0	5	1	7	0	4	0	1	2	4	4	23
New Mexico.....	0	0	1	0	1	0	0	2	1	0	2	0	7
New York.....	0	0	0	0	0	0	0	0	13	14	8	12	47
North Carolina.....	0	0	1	2	0	0	0	0	0	0	0	0	3
North Dakota.....	0	0	0	0	0	0	0	1	0	0	0	0	1
Ohio.....	0	16	31	23	32	36	1	0	0	0	0	0	129
Oklahoma.....	0	1	0	0	0	0	0	0	0	0	0	0	1
Pennsylvania.....	0	0	0	1	4	1	0	0	0	0	0	0	6
Rhode Island.....	0	1	0	0	0	0	0	0	0	0	0	0	1
South Dakota.....	0	1	0	0	0	0	0	0	0	0	0	0	1
Texas.....	0	0	0	0	1	4	2	0	0	3	0	0	10
Virginia.....	0	0	0	1	0	1	0	0	0	0	0	0	2
Wisconsin.....	0	0	0	0	0	0	0	0	1	0	0	0	1
Alaska and Hawaii.....	1	0	1	1	0	0	0	0	1	0	0	0	4
Totals.....	94	116	201	212	167	175	9	7	19	22	20	20	1,062

GRADUATES OF APPROVED SCHOOLS AND OTHERS
REGISTERED, 1922-1939

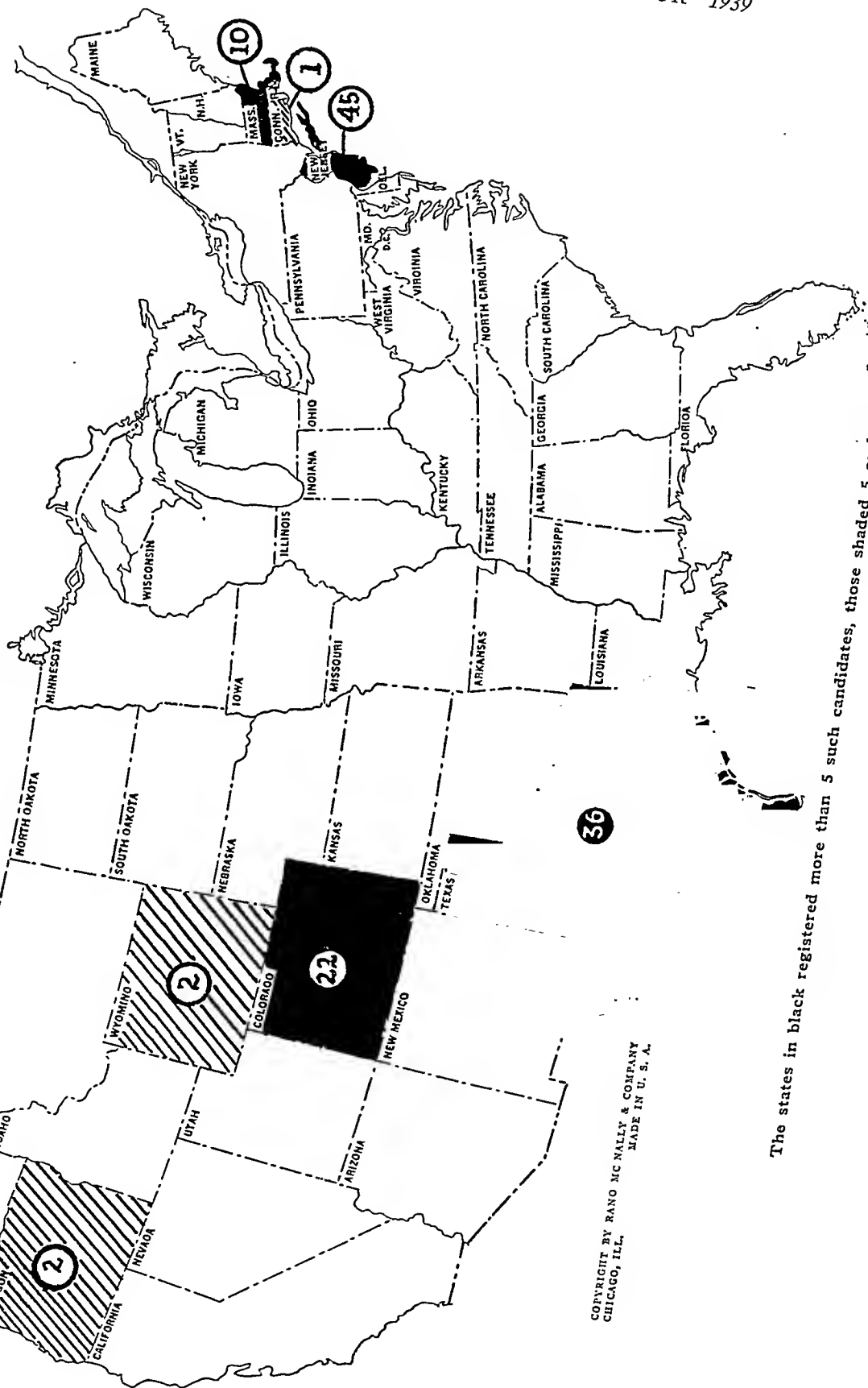
The educational fitness of the individuals registered in eighteen years, 1922-1939, is shown in table 20. Of the 9,355 registered by all methods in 1939, 8,061, or 86.2 per cent, graduated from approved medical schools and there were 1,294, 13.8 per cent, other practitioners registered. In the computation of these figures, all

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CHART 2.—MEDICAL EXAMINING BOARDS REGISTERING OSTEOPATHS TO PRACTICE MEDICINE, SURGERY OR BOTH, 1939

Total Registered 118.
By Examination, 98; Reciprocity or Endorsement, 20.
Number of States 7.



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The states in black registered more than 5 such candidates, those shaded 5 or less.

schools rated as class A and B by the Council on Medical Education and Hospitals since 1907 are classified as approved. In the column "others" are included graduates of institutions prior to 1907, of foreign faculties of medicine, class C graduates, osteopaths and graduates of schools that have been refused recognition. In 1928 the classification A, B and C by the Council was discontinued and medical schools have since been considered either as approved or unapproved.

Of the 9,355 graduates registered in 1939, 6,489 were registered after examination and 2,866 by reciprocity or endorsement of credentials. Among those examined there were 5,374 graduates of approved medical schools in the United States and Canada, 269 graduates of unapproved institutions and 846 others. Likewise among those registered by endorsement there were 2,687 graduates of approved medical schools in the United States and Canada, forty-five from unapproved schools and 134 others. The 1,294 other than graduates of approved schools included 314 graduates of unapproved schools in the United States. New York registered 927 graduates of approved schools of a total of

TABLE 22.—*Graduates of Schools of Osteopathy Registered by Medical Examining Boards, 1934-1939*

	Examination						Reciprocity and Endorsement						Total
	1934	1935	1936	1937	1938	1939	1934	1935	1936	1937	1938	1939	
Colorado.....	10	13	16	19	18	22	0	0	0	0	0	0	93
Connecticut.....	1	0	1	1	0	1	0	0	0	0	0	0	4
Dist. Columbia..	0	0	0	0	1	0	1	0	0	0	0	0	2
Massachusetts..	21	5	12	18	10	10	0	0	0	0	0	0	76
New Hampshire..	0	1	1	4	2	0	0	0	0	2	1	0	11
New Jersey.....	0	2	0	52	46	45	0	0	0	0	0	0	147
Oregon.....	0	0	1	1	1	1	0	0	2	0	1	1	8
Texas.....	7	7	11	17	22	19	17	13	34	72	37	17	273
Virginia.....	2	4	4	2	1	0	0	1	0	0	0	0	14
Wisconsin.....	2	0	3	1	0	0	3	0	5	2	3	0	19
Wyoming.....	0	0	0	0	0	0	1	2	4	4	1	2	14
Totals.....	43	32	49	115	101	93	22	16	45	80	43	20	664

1,439. This state licensed the greatest number with foreign credentials. Only approved physicians were registered in Arkansas, Delaware, Idaho, Kansas, Nebraska, Nevada, North Dakota, Oklahoma, South Carolina and West Virginia.

The number of graduates of approved schools in the period shown has always been in the bracket above 4,000, while in the other groups it has until recent years been below 700.

GRADUATES OF UNAPPROVED MEDICAL SCHOOLS REGISTERED, 1934-1939

In table 21 will be noted the number of graduates of those institutions which do not meet the standards for approval outlined by the House of Delegates of the American Medical Association who were registered with or without examination from 1934 to 1939 inclusive.

Thirteen states registered 195 such graduates in 1939, 175 by examination and twenty without examination, eight more than in 1938. One each was licensed in California, Florida, Indiana, Pennsylvania and Virginia.

In the six year period shown, 1,062 graduates of unapproved schools and undergraduates were registered, 965 by examination and ninety-seven by reciprocity.

Chart 1, on page 1654, indicates by shaded lines those registering fewer than six graduates of unapproved medical schools and by a solid area those registering more than five such candidates during 1939.

GRADUATES OF SCHOOLS OF OSTEOPATHY REGISTERED BY MEDICAL EXAMINING BOARDS, 1934-1939

The number of graduates of schools of osteopathy granted the privilege of practicing medicine, surgery or both by the medical examining boards from 1934 to 1939 inclusive are given in table 22. Osteopaths licensed as physicians and surgeons by osteopathic boards, as for example those in California, are not included in these statistics.

In 1939 seven states registered such individuals, ninety-eight by examination and twenty by endorsement of credentials, namely in Colorado, Connecticut, Massachusetts, New Jersey, Oregon, Texas and Wyoming. These facts are shown graphically in chart 2 on page 1656, indicating by shaded lines those registering fewer than six graduates and by a solid area those licensing more than five such candidates during 1939.

In the six year period 1934-1939, 664 graduates of osteopathic schools secured licenses to practice medicine, surgery or both. Texas registered 273, New Jersey 145, Colorado ninety-eight and Massachusetts seventy-six; other states fewer than twenty.

In Colorado osteopaths have no separate board. They are admitted to the examination for a license to practice medicine. The statute of Colorado is silent with respect to the scope of practice authorized by a license issued to osteopaths.

The Connecticut statute provides that any registered osteopath may practice either medicine, surgery or both, as the case may be, after passing a satisfactory examination before the medical examining board.

The Massachusetts statute, by definition, includes osteopathy in the practice of medicine and does not differentiate the type of license issued to an osteopathic applicant. The medical practice act requires that any applicant for license to practice must be in possession of a degree of doctor of medicine, or its equivalent, from a legally chartered medical school that gives a full four year course of instruction of not less than thirty-two weeks in each year. An amendment to the medical practice act providing an approving authority is not yet effective.

In New Hampshire osteopaths are granted the right to practice medicine and surgery by the Board of Registration in Medicine.

Osteopaths who are duly registered and licensed to practice osteopathy in the state of New Jersey, who present three years of practice of surgery in a hospital approved by the Board of Medical Examiners, may be admitted to the examination to be licensed to practice medicine and surgery.

The statutes of Texas provide for the issuing of a license to practice medicine only. So far as the statutes indicate, the osteopaths are not restricted in their field of practice.

In the District of Columbia, Oregon, Virginia, Wisconsin and Wyoming, osteopaths are granted the right to practice surgery.

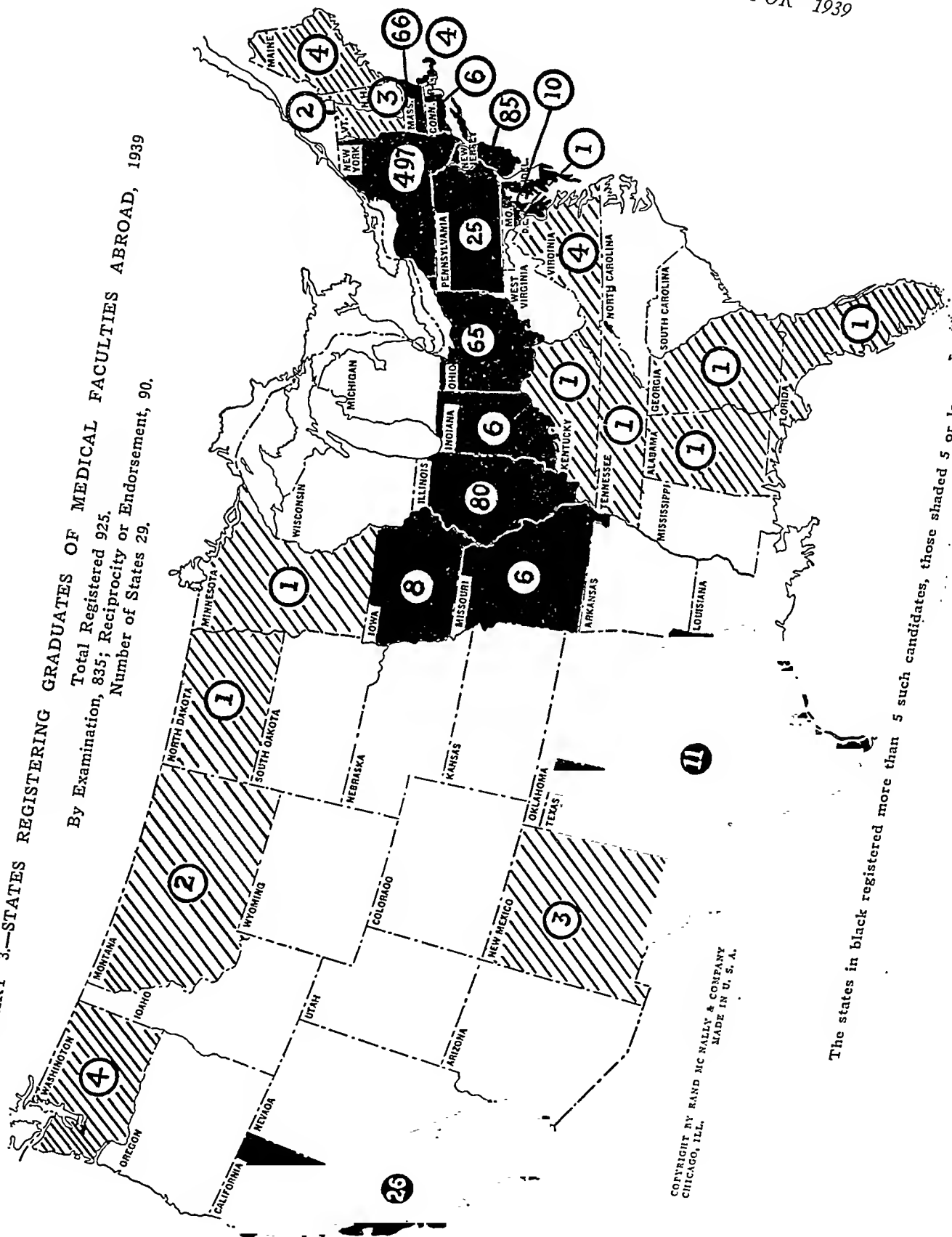
PHYSICIANS EXAMINED ON THE BASIS OF CREDENTIALS OBTAINED IN COUNTRIES OTHER THAN THE UNITED STATES AND CANADA, 1939

Data recently received from state boards of medical examiners pertaining to the requirements of candidates for medical licensure holding credentials from medical schools outside the United States and Canada are presented in table 23. Thirteen states report that, because of the inability to evaluate foreign credentials, holders

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CHART 3.—STATES REGISTERING GRADUATES OF MEDICAL FACULTIES ABROAD, 1939
By Examination, 835; Reciprocity or Endorsement, 90.
Number of States 29.



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MADE IN U. S. A.

The states in black registered more than 5 such candidates, those shaded 5 or less.

of such certificates are not eligible for licensure. Of the remaining, twenty-one require full citizenship and twelve require first citizenship papers as a condition precedent to taking the state board examinations. In some states

TABLE 23.—Requirements of Candidates for Medical Licensure on the Basis of Credentials Obtained in Countries Other Than the United States and Canada

	Admitted to Examination	Admitted by Endorsement of State License*	Citizenship	Basic Science Certificate	Internship	Further Medical Training	Examination Fee, Dollars	Other Requirements
Alabama.....	+	..	+	..	+	..	10	..
Arizona.....	+	Not accepted	..	..	..	..	..	..
Arkansas (regular board)...	+	Not accepted	..	..	..	..	..	..
California.....	+	..	..	..	+¹⁸	+ ¹⁸	25	11
Colorado.....	+	..	1st P	+	..	..	25 ⁴	3
Connecticut (regular board)...	+	..	1st P	+	..	..	25	..
Delaware (regular board)...	+	+	+	+	+	..	25	5
District of Columbia.....	+	+ ⁶	+	+	+	..	50	10
Florida.....	+	..	+	+	..	+ ⁷	25	..
Georgia.....	+	..	+	+	..	+ ⁷	20	..
Idaho.....	+	..	+ ⁸	..	+	..	25	..
Illinois.....	+	+ ²⁰	1st P	..	+	..	10	..
Indiana.....	+	+	+ ⁹	..	..	+⁷	25	..
Iowa.....	+ ¹⁰	..	+	+	+	+ ²	25	..
Kansas.....	+	..	+	+	+	..	25	11
Kentucky.....	+	+ ¹²	+	..	+	..	25	..
Louisiana.....	+	Not accepted	..	..	..	..	..	..
Maine.....	+	..	1st P	..	..	..	25	11
Maryland (regular board)...	+	+	1st P	..	..	..	25	11 19
Massachusetts.....	+	..	1st P	..	..	..	25	..
Michigan.....	+	+	+	+	+	+ ⁷	..	21
Minnesota.....	+	..	+	+	..	..	20	11 22
Mississippi.....	+	..	+	..	+	..	10.25	..
Missouri.....	+	..	+	..	..	..	15	..
Montana.....	+	+	+	..	..	..	50	..
Nebraska.....	+	..	+	+	..	..	25	..
Nevada.....	+	Not accepted	..	..	..	..	..	..
New Hampshire.....	+	+	+	..	+ ¹⁷	..	20	..
New Jersey.....	+	+	+	..	..	..	25	11
New Mexico.....	+	Not accepted	..	..	..	..	..	..
New York.....	+	+	1st P	..	..	..	25	..
North Carolina.....	+	Not accepted	..	..	..	..	..	..
North Dakota.....	+	+	+	..	+	..	25	11
Ohio.....	+ ¹⁰	+ ¹	1st P	..	+ ¹³	+ ¹³	25	11
Oklahoma.....	+	Not accepted	..	..	..	..	..	..
Oregon.....	+	..	1st P	+	+ ²	+ ²	25	..
Pennsylvania.....	+	..	1st P	..	+	..	25	11
Rhode Island.....	+	..	1st P	..	+ ¹⁴	..	20	..
South Carolina.....	+	Not accepted	..	..	..	..	..	..
South Dakota.....	+	Not accepted	..	..	..	..	..	..
Tennessee.....	+	Not accepted	..	..	..	..	..	..
Texas.....	+	+	+	..	..	..	25	..
Utah.....	+	+ ¹²	+	..	+	..	25	..
Vermont.....	+ ¹⁶	+	..	+	+	..	20	..
Virginia.....	+	..	+	..	..	..	25	..
Washington.....	+	..	1st P	+	+	+ ⁷	25	..
West Virginia.....	+	Not accepted	..	..	..	..	..	..
Wisconsin.....	+	Not accepted	..	..	..	..	..	..
Wyoming.....	+	Not accepted	..	..	..	..	..	..
Alaska.....	+	+	..	..	+	..	25	..

Compilation of data furnished by state examining boards. This information is not guaranteed as there may have been changes of which this office has not been advised. For an authentic statement write directly to the medical board.

* Refer to chart of "Reciprocity and Endorsement Policies" for further data.

1. Certificate of National Board of Medical Examiners and licensure in country in which school of graduation is located.
 2. Internship or one year in medical school in United States.
 3. Certificate of National Board of Medical Examiners.
 4. For graduates of last five years; if more than five years \$50.
 5. Residence of one year in Delaware.
 6. Provided similar privileges are accorded licensees of District of Columbia by licensing agency of the jurisdiction from which the applicant comes.
 7. Senior year in class A medical school in United States.
 8. Effective May 1939.
 9. Reciprocity applicants only.
 10. Application must be filed six months prior to date of examination.
 11. Licensed to practice medicine and surgery in country in which school of graduation is located.
 12. Diplomates of National Board of Medical Examiners eligible for licensure only.
 13. At the discretion of the board.
 14. Internship and one year graduate work.
 15. After July 1, 1939.
 16. Applicants from schools in England and Scotland only.
 17. Internship completed in foreign countries after July 1, 1934, not acceptable.
 18. Rotating internship in approved hospital in the United States or completion of senior year in class A medical school in the United States.
 19. These requirements apply also to graduates of Canadian schools.
 20. Clinical examination required.
 21. Examination fee, Lansing and Ann Arbor \$25; Detroit \$35.
 22. Applies to graduates of Canadian schools. Others not accepted.
- In most states all foreign credentials must be viséed by the American consul.

the requirement is made by rule of the medical board, in others the provision is by statute. In addition, other restrictions are imposed. Eleven states require a certificate in the basic sciences. Twenty-three states require a one year internship in a United States hospital approved for intern training. In five states there is a requirement of a senior year's work in an approved medical school in the United States. Application for licensure must be on file six months prior to the date of examination in two states. These data are compiled on the basis of information furnished by state examining boards.

Many of the graduates of foreign faculties of medicine are seeking or are serving internships in approved hospitals in the United States. The Council on Medical Education and Hospitals advises hospitals approved for the training of interns that should they desire to employ such interns the following resolution should be complied with:

Resolved, That, when suitable graduates of class A schools in the United States and Canada are not available, hospitals approved for intern training may accept graduates of European universities who have passed parts I and II of the examinations of the National Board of Medical Examiners.

Hospitals in Eastern states are absorbing most of the graduates of foreign faculties of medicine.

Table 24 presents figures covering physicians examined on the basis of credentials obtained in countries other than the United States and Canada by licensing boards of the United States and by Hawaii and Puerto Rico. The figures represent both American and foreign born physicians educated abroad. It will be recalled that during the last ten years students from the United States have migrated to Europe to pursue medical courses. In 1937-1938, 1,346 citizens of the United States were so enrolled. Similar figures obtain for previous years. The majority, however, of those now being licensed represent foreign born physicians. Eighty-nine faculties of medicine, including three licensing corporations, of seventeen European and three other countries were represented. There were 1,692 examined, of whom 839 passed and 853 failed, 50.4 per cent. Graduates of the University of Vienna (432) were examined in fifteen states, 52.0 per cent of whom failed. Fourteen states examined students of the University of Berlin and ten states graduates of the Universities of Bologna and Rome. Graduates of all other schools were examined in less than ten states. Twenty-six states, Hawaii and Puerto Rico examined physicians educated abroad. The state of New York had the greatest number, 1,093, of whom 472 passed and 621 failed, 56.8 per cent. New Jersey examined 139, with sixty successful and seventy-nine unsuccessful results; 56.8 per cent. Illinois examined ninety-six, of whom seventeen, 17.7 per cent, failed and Maryland ninety, having 27.8 per cent failures.

In addition to the figures presented in this table, ninety graduates of foreign faculties of medicine were licensed in 1939 without examination by endorsement of credentials.

Chart 3, page 1658, shows in graphic form the states which during 1939 registered graduates of foreign medical faculties by examination, reciprocity and endorsement, or both. Included in the figures on the chart are the ninety granted licenses by reciprocity and endorsement, with but a few exceptions, on the basis of a license obtained in the United States. From a perusal of tables 2, 7 and 10 it can be ascertained how many were licensed by both these means in the various states. The

(CONTINUED ON PAGE 1663)

TABLE 24.—Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada, 1939

Marital Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	California	Connecticut	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Maine	Maryland	Massachusetts	Missouri	Montana	New Hampshire	New Jersey	New Mexico	New York	North Dakota	Ohio	Pennsylvania	Rhode Island	Tennessee	Texas	Vermont	Virginia	Washington	Hawaii and Puerto Rico
1 Université Libre de Bruxelles.....	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
2 Université de Liège.....	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
3 Universität Gent.....	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
4 Deutsche Universität, Prag.....	0	1	1	0	1	3	0				3	2					17	19	2	0							
5 Masarykova Univerzita, Brno.....	0	1	1	0	1	3	0				1	0					1	4									
6 Univerzita Karlova, Praha.....	0	1	1	0	1	3	0				1	0					1	4									
7 Univerzita Komenského, Bratislava.....	0	1	1	0	1	3	0				1	0					1	4									
8 University of Durham.....																	1	0									
9 University of Sheffield.....																	1	0									
10 Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England.....																	1	0									
11 Universté de Tartu.....	2	0															5	2									
12 Universté de Lyon.....																											
13 Universté de Montpellier.....																											
14 Universté de Nancy.....																											
15 Universté de Paris.....																											
16 Universté de Strasbourg.....																											
17 Albert-Ludwigs-Universität, Freiburg.....	2	1	0	1			3	1			2	0			1	1	10	10	1	0							
18 Albertus-Universität, Königsberg.....	0	1									0	1			0	1	3	7	1	1							
19 Christian-Albrechts-Universität, Kiel.....	0	1									1	1					2	2	1	1	0						
20 Eberhard-Karls-Universität, Tübingen.....	0	1															1	1									
21 Ernst-Moritz-Arzt-Universität, Gießenwald.....	1	0	1	0	1												1	1									
22 Friedrich-Wilhelms-Universität, Erlangen.....	1	0	1	0	1												1	1									
23 Georg-August-Universität, Berlin.....	2	0	1				10	1			7	1	0		5	7	62	77	8	2	1						
24 Hamburgische Universität, Göttingen.....	0	1					0	1			1	1					4	0									
25 Heesche Universität, Gießen.....	1	1	0	1			0	1			1	1					8	10	1	0							
26 Johann Wolfgang Goethe-Universität, Frankfurt-am-Main.....	1	1	0	1			1	0			1	1					17	15	1								
27 Julius-Maximilians-Universität, Würzburg.....	1	1	0	1			2	0			2	0					14	13	1								
28 Julius-Maximilians-Universität, Würzburg.....	1	1	0	1			2	0			2	0					17	15	1								
29 Karl-Franzens-Universität, Graz.....	1	1	0	1			2	0			1	0					12	10	2								
30 Leopold-Franzens-Universität, Innsbruck.....	2	1	0	2			0	1			3	1			0	2	1	3	5	2							
31 Ludwig-Maximilians-Universität, München.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
32 Medizinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
33 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
34 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
35 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
36 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
37 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
38 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
39 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
40 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
41 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
42 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
43 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
44 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
45 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
46 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
47 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
48 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
49 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
50 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
51 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
52 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
53 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
54 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
55 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
56 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
57 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
58 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
59 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
60 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
61 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
62 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
63 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
64 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
65 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
66 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
67 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
68 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
69 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
70 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
71 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
72 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
73 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
74 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
75 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
76 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
77 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
78 Rheinische Akademie Düsseldorf.....	2	1	0	2			0	1			3	1			2	1	21	27	4	1							
79 Rheinische Akademie Düsseldorf.....	2	1																									

HUNGARY

15 Magyar Királyi Erzsébet Tudományegyetem, Pécs.....
16 Magyar Királyi Ferenc József Tudományegyetem, Szeged.....
17 Magyar Királyi Pázmány Péter Tudományegyetem, Buda-
pest.....
18 Magyar Királyi Tisza-Egyetemen Tudományegyetem, Debrecen.

IRELAND

19 Licentiate of the Royal College of Physicians of Ireland
and Licentiate of the Royal College of Surgeons in Ireland
20 National University of Ireland.....
21 Queen's University, Belfast.....

ITALY

22 Regia Università di "Benito Mussolini" di Bari.....
23 Regia Università di Bologna.....
24 Regia Università di Firenze.....
25 Regia Università di Genova.....
26 Regia Università di Messina.....
27 Regia Università di Milano.....
28 Regia Università di Modena.....
29 Regia Università di Napoli.....
30 Regia Università di Padova.....
31 Regia Università di Palermo.....
32 Regia Università di Perugia.....
33 Regia Università di Pisa.....
34 Regia Università di Roma.....
35 Regia Università di Siena.....
36 Regia Università di Torino.....

JAPAN

37 Japan Medical College, Tokyo.....
38 Japan University Medical Department, Tokyo.....

LATVIA

39 Latvijas Universitāte, Riga.....

LEBANON

40 American University of Beirut.....

MEXICO

41 Universidad Nacional, Mexico, D.F.....

NETHERLANDS

42 Universiteit van Amsterdam.....

POLAND

43 Uniwersytet Jana Kazimierza, Lwów.....
44 Uniwersytet Józefa Piłsudskiego, Warszawa.....
45 Uniwersytet Stefana Batorego, Wilno.....

ROMANIA

46 Universitatea Regala Ferdinand I-ii din Cluj.....

SCOTLAND

47 Licentiate of the Royal College of Physicians, of the Royal
College of Surgeons, Edinburgh, and of the Royal Fac-
ulty of Physicians and Surgeons, Glasgow.....

SWITZERLAND

48 Universität Basel.....
49 Universität Bern.....
50 Universität Zürich.....
51 Université de Genève.....
52 Université de Lausanne.....

UNION OF SOVIET REPUBLICS

53 Kiev Medical Institute.....
54 Second Leningrad Medical Institute.....
55 Second Moscow Medical Institute.....
56 Voronezh Medical Institute.....

TOTALS

57 Totals.....
58 Totals—Examined—Passed.....
59 Totals—Examined—Failed.....
60 Percentage—Failed.....

P = Passed, F = Failed.

TABLE 25.—Physicians Examined by Licensing Boards of the United States and Possessions on the Basis of Credentials Obtained in Countries Other Than the United States and Canada, 1934-1939

	1934-1938		1939			1934-1938		1939	
	Number Examined	Percentage Failed	Number Examined	Percentage Failed		Number Examined	Percentage Failed	Number Examined	Percentage Failed
AUSTRALIA									
University of Adelaide.....	1	0.0	0	0.0					
University of Sydney.....	1	0.0	0	0.0					
BELGIUM									
Université Catholique de Louvain.....	4	50.0	0	0.0					
Université de Liège.....	5	80.0	1	0.0					
Université Libre de Bruxelles.....	3	0.0	4	25.0					
Universiteit Gent.....	2	100.0	2	50.0					
CHILE									
Universidad de Chile, Santiago.....	2	0.0	0	0.0					
CHINA									
Pennsylvania Medical School, Shanghai.....	5	20.0	0	0.0					
Woman's Christian Medical College, Shanghai.....	1	0.0	0	0.0					
CHOSSEN (KOREA)									
Severance Union Medical College, Keijon.....	2	100.0	0	0.0					
CUBA									
Universidad de la Habana.....	13	33.8	0	0.0					
CZECHOSLOVAKIA									
Deutsche Universität, Prag.....	26	30.8	49	47.0					
Masarykova Universita, Brno.....	4	75.0	1	0.0					
Universita Karlova, Praha.....	8	75.0	6	83.3					
Univerzita Komenského, Bratislava.....	4	50.0	3	33.3					
ENGLAND									
Fellow of the Royal College of Physicians of London	1	0.0	0	0.0					
Licentiate in Medicine, Surgery and Midwifery of the Apothecaries' Society of London.....	5	60.0	0	0.0					
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Physicians of London.....	2	50.0	0	0.0					
Licentiate of the Royal College of Physicians of London and Member of the Royal College of Surgeons of England.....	64	7.8	9	22.2					
University of Birmingham.....	3	0.0	0	0.0					
University of Bristol.....	2	0.0	0	0.0					
University of Cambridge.....	1	0.0	0	0.0					
University of Durham, Newcastle-upon-Tyne.....	8	25.0	1	0.0					
University of Liverpool.....	1	0.0	0	0.0					
University of London.....	8	37.5	0	0.0					
University of Oxford.....	1	0.0	0	0.0					
University of Sheffield.....	8	0.0	1	0.0					
ESTONIA									
Universit�� de Tartu.....	1	100.0	1	100.0					
FRANCE									
Universit�� de Bordeaux.....	2	50.0	0	0.0					
Universit�� de Lyon.....	5	40.0	2	50.0					
Universit�� de Montpellier.....	5	20.0	3	33.3					
Universit�� de Nancy.....	1	100.0	5	60.0					
Universit�� de Paris.....	107	36.4	22	36.4					
Universit�� de Strasbourg.....	4	0.0	1	0.0					
Universit�� de Toulouse.....	5	20.0	0	0.0					
GERMANY									
.....burg.....	58	34.5	33	42.4					
.....g.....	35	45.7	15	73.3					
.....Kiel.....	7	28.6	14	50.0					
.....bingen.....	18	44.4	3	66.7					
.....Griefswald.....	2	50.0	1	100.0					
.....Erlangen.....	17	64.7	11	63.6					
.....Berlin.....	325	34.5	193	48.2					
.....ngen.....	12	33.3	15	66.7					
.....	56	19.6	27	51.9					
.....Glessen.....	11	27.3	14	50.0					
.....iversit��t, Frankfurt.....	66	33.3	39	46.2					
.....	56	42.9	39	51.3					
.....	9	44.4	12	41.7					
Karl-Franzens-Universit��t, Graz.....	21	38.1	6	83.3					
Leonold-Franzens-Universit��t, Innsbruck.....	9	33.3	1	0.0					
Ludwig-Maximilians-Universit��t, M��nchen.....	117	33.3	70	48.6					
Medizinische Akademie D��sseldorf.....	14	42.8	4	50.0					
.....	4	50.0	5	60.0					
.....	31	45.2	32	46.9					
.....	85	31.8	62	54.8					
.....	7	28.6	3	66.7					
.....	82	28.0	59	54.2					
Universit��t Heidelberg.....	32	37.5	11	18.2					
Universit��t K��ln.....	44	45.5	20	52.3					
Universit��t Leipzig.....	15	40.0	8	75.0					
Universit��t Rostock.....	13	40.0	8	75.0					
Universit��t Wien.....	317	27.1	432	52.0					
Vereinigten Friedrichs-Universit��t, Halle Wittenberg.....	4	25.0	16	62.5					
Westf��lische Wilhelms-Universit��t, M��nster.....	3	66.7	0	0.0					
GREECE									
National University of Athens.....	15	80.0	4	100.0					
GUATEMALA									
Universidad Nacional de Guatemala.....	2	50.0	0	0.0					
HUNGARY									
Magyar Kir��lyi Erzs��bet Tudom��nyegyetem, P��cs.....	4	50.0	10	70.0					
Magyar Kir��lyi Ferencz J��zsef Tudom��nyegyetem, Szeged.....	7	42.9	2	50.0					
Magyar Kir��lyi P��zm��ny Petrus Tudom��nyegyetem, Budapest.....	38	34.2	26	61.5					
Magyar Kir��lyi Tisza-Istv��n Tudom��nyegyetem, Debrecen.....	2	50.0	1	0.0					
IRAN (PERSIA)									
Government Medical School, Teheran.....	1	100.0	0	0.0					
IRELAND									
Licentiate of the Royal College of Physicians of Ireland and Licentiate of the Royal College of Surgeons in Ireland.....	3	33.3	2	50.0					
National University of Ireland.....	7	42.9	1	0.0					
Queen's University, Belfast.....	0	0.0	1	0.0					
University of Dublin.....	12	25.0	0	0.0					
ITALY									
Regia Universit�� di "Benito Mussolini" di Bari.....	1	0.0	1	100.0					
Regia Universit�� di Bologna.....	65	50.8	37	75.7					
Regia Universit�� di Catania.....	2	50.0	0	0.0					
Regia Universit�� di Firenze.....	10	40.0	9	83.3					
Regia Universit�� di Genova.....	10	80.0	6	66.7					
Regia Universit�� di Messina.....	4	100.0	4	100.0					
Regia Universit�� di Milano.....	6	66.7	4	10.0					
Regia Universit�� di Modena.....	11	72.7	2	100.0					
Regia Universit�� di Napoli.....	147	52.2	18	72.2					
Regia Universit�� di Padova.....	23	56.5	2	50.0					
Regia Universit�� di Palermo.....	16	68.8	4	100.0					
Regia Universit�� di Pavia.....	2	50.0	0	0.0					
Regia Universit�� di Perugia.....	4	25.0	1	100.0					
Regia Universit�� di Pisa.....	12	50.0	4	75.0					
Regia Universit�� di Roma.....	233	50.2	62	56.5					
Regia Universit�� di Siena.....	8	62.5	6	83.3					
Regia Universit�� di Torino.....	2	0.0	2	0.0					
JAPAN									
Japan Medical College, Tokyo.....	2	100.0	1	100.0					
Japan University Medical Department, Tokyo.....	0	0.0	1	100.0					
LATVIA									
Latvijas Universit��te, R��ga.....	1	100.0	1	100.0					
LEBANON									
American University of Beirut.....	4	0.0	2	0.0					
Universit�� de St. Joseph, Beyrouth.....	2	50.0	0	0.0					
MEXICO									
Escuela Libre de Homeopat��a del Estado de Puebla	1	100.0	0	0.0					
Escuela M��dico Militar, M��xico, D.F.....	5	80.0	0	0.0					
Instituto Literario y Cient��fico, San Luis Potos��.....	1	100.0	0	0.0					
Universidad Nacional, M��xico, D.F.....	10	60.0	3	100.0					
NETHERLANDS									
Rijks-Universiteit te Leliden.....	3	0.0	0	0.0					
Rijks-Universiteit te Utrecht.....	1	0.0	0	0.0					
Universiteit van Amsterdam.....	1	0.0	1	0.0					
POLAND									
Uniwersytet Jana Kazimierza, Lw��w.....	4	50.0	3	33.3					
Uniwersytet Jozefa Pi��sudski��go, Warszawa.....	3	33.3	3	66.7					
Uniwersytet Stefana Batorego, Wilno.....	1	0.0	1	100.0					
PORTUGAL									
Universidade de Lisboa.....	4	75.0	0	0.0					
ROMANIA									
Universitatea din Bucuresti.....	2	50.0	0	0.0					
Universitatea Regele Ferdinand I-lea din Cluj.....	4	50.0	3	33.3					
SCOTLAND									
Fellow of the Royal Faculty of Physicians and Sur- geons of Glasgow.....	1	0.0	0	0.0					
Licentiate of the Royal College of Physicians of Edinburgh.....	1	0.0	0	0.0					
Licentiate of Edinburgh and Surgeons of Edinburgh.....	8	0.0	0	0.0					
Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons, Glasgow.....	181	20.4	57	14.0					
School of Medicine of the Royal Colleges, Edinburgh	1	0.0	0	0.0					
University of Aberdeen.....	11	9.1	0	0.0					
University of Edinburgh.....	52	11.5	8	0.0					
University of Glasgow.....	39	0.0	1	0.0					
University of St. Andrews.....	74	12.2	1	0.0					
SOUTH AFRICA, UNION OF									
University of Cape Town.....	1	0.0	0	0.0					
SPAIN									
Universidad Central de Espa��a, Madrid.....	4	25.0	0	0.0					
Universidad de Santiago.....	1	0.0	0	0.0					
SWITZERLAND									
Universit��t Basel.....	103	26.2	27	51.9					
Universit��t Bern.....	183	34.4	39	22.3					
Universit��t Z��rich.....	94	29.6	15	60.0					
Universit�� de Gen��ve.....	85	20.8	19	42.1					
Universit�� de Lausanne.....	71	22.4	27	40.7					
TURKEY									
University of UNION OF	2	100.0	0	0.0					
First Minsk.....	2	50.0	0	0.0					
Kharkov Medical Institute.....	4	75.0	1	100.0					
Kiev Medical Institute.....	1	100.0	0	0.0					
Military Medical Academy, Leningrad.....	3	66.7	0	0.0					
Saratov Medical Institute.....	1	0.0	1	100.0					
Second Leningrad Medical Institute.....	0	0.0	1	0.0					
Second Minsk Medical Institute.....	1	0.0	0	0.0					
Tomsk Medical Institute.....	1	0.0	1	100.0					
Varna Medical Institute.....	0	0.0	1	100.0					
YUGOSLAVIA									
Beogradskog Universiteta.....	2	50.0	0	0.0					
Zagrebaskog Universiteta.....	1	0.0	0	0.0					

(CONTINUED FROM PAGE 1659)

states which licensed more than five graduates are indicated in black on the chart; those shaded, five or less. Thirteen states registered more than five, sixteen less than five. These twenty-nine states altogether registered 925.

TABLE 26.—Physicians Examined on the Basis of Credentials Obtained in Countries Other Than the United States and Canada, 1930-1938

Year	Number Examined	Passed	Percentage Failed
1930.....	167	92	44.9
1931.....	153	91	42.4
1932.....	182	95	47.3
1933.....	200	129	35.5
1934.....	285	170	40.2
1935.....	437	303	30.7
1936.....	588	382	35.0
1937.....	920	637	30.8
1938.....	1,163	716	38.3
1939.....	1,692	839	50.4
Totals.....	5,792	3,455	38.6

In table 25 are assembled figures showing the standing during the five year period 1934-1938 of the graduates of faculties of medicine outside the United States and Canada admitted to licensing examinations in this country. Included also is a tabulation for 1939. There were represented 129 foreign faculties and nine of the licensing corporations of Great Britain. During the five year period 3,395 were examined and in 1939, 1,692. The largest number from any one school in the five year period was the University of Berlin, 325, of whom 34.5 per cent failed. There were 316 from the University of Vienna with 27.1 per cent failures.

Table 26, the last in this group of statistics, records the number of graduates of faculties of medicine abroad examined in the United States in the ten years 1930 to 1939 inclusive. There were 529 more examined in 1939 than in 1938 and 1,525 more than in 1930. During the ten year period 5,792 were examined, of whom 3,455 passed and 38.6 per cent failed.

The Council on Medical Education and Hospitals does not grade or classify medical schools outside the United States and Canada. No opportunity is afforded for visiting and inspecting such schools, nor are official reports received from them. The Council therefore has no evidence on which to base a rating. A list of foreign schools which has been published from time to time merely serves as a key to the American Medical Directory and indicates the names of the institutions which physicians now licensed to practice in the United States attended or from which they graduated.

ANNUAL REGISTRATION

Twenty-one states, Alaska and Hawaii, as shown in table 27, require that all physicians licensed register annually, whether or not they reside in the state.

TABLE 27.—Annual Registration

Alaska	Louisiana
Arizona	Minnesota
Arkansas	Nebraska
California	Nevada
Colorado	New York
Connecticut	North Dakota
Florida	Oregon
Georgia	Pennsylvania
Hawaii	Texas
Iowa	Utah
Idaho	Wyoming
Kansas	

Four states—Alabama, Delaware, Mississippi and North Carolina—require physicians to pay annually an occupational or commercial tax. The fee for this registration is generally \$2.

EXAMINING BOARDS IN MEDICAL SPECIALTIES

The House of Delegates of the American Medical Association at its annual session in 1933 passed the following resolution:

Resolved, That the Council on Medical Education and Hospitals is hereby authorized to express its approval of such examining boards in medical specialties as conform to the standards of administration formulated by the Council; and be it further

Resolved, That the Board of Trustees of the American Medical Association be urged to use the machinery of the American Medical Association, including the publication of its directory, in furthering the work of such examining boards as may be accredited by the Council.

Standards were formulated by the Council and approved by the House of Delegates, June 11-15, 1934. Fourteen boards have to date been approved, and those certified, with the exception of plastic surgery, will be identified in the sixteenth edition of the American Medical Directory now in process of compilation, by the key A. B. 1, 2, and so on. The American Board of Plastic Surgery has expressed the desire not to credit

Certificates Awarded by Examining Boards in Medical Specialties

Key A. B.	Name of Board	Year	Certificates Awarded (Active Diplomates)
1.	American Board of Pediatrics.....	1933	1,470
2.	American Board of Psychiatry and Neurology.....	1934	832
3.	American Board of Orthopaedic Surgery.....	1934	652
4.	American Board of Dermatology and Syphilology.....	1932	492
5.	American Board of Radiology.....	1934	1,404
6.	American Board of Urology.....	1935	677
7.	American Board of Obstetrics and Gynecology.....	1930	1,051
8.	American Board of Internal Medicine.....	1935	2,158
9.	American Board of Pathology.....	1936	706
10.	American Board of Ophthalmology.....	1917	1,706
11.	American Board of Otolaryngology.....	1924	2,977
12.	American Board of Surgery.....	1937	1,274
13.	American Board of Anesthesiology.....	1937	86
14.	American Board of Plastic Surgery.....	1937	112
Total			15,597

in the sixteenth edition of the Directory its diplomates until all eligible have had opportunity to receive certification. The key number of the boards, the year incorporated and the number of certificates awarded to date appear in the accompanying tabulation. The number certified by some of the boards has been reduced by death. Recorded therefore are the active diplomates.

To date 15,597 have been certified in fourteen specialties. Each of these boards has published a booklet containing a brief statement regarding its organization, personnel, purposes and qualifications for eligibility for certification, which is available on request to the officers of these boards or to the American Medical Association.

BASIC SCIENCE BOARDS

A certificate in the basic sciences is a prerequisite for licensure in fourteen states and the District of Columbia. Some of these states have reciprocal agreements, but the certificate is obtainable after examination in the majority of instances. Boards for the certification of candidates functioned in thirteen states and the District of Columbia in 1939, namely Arizona, Arkansas, Colorado, Connecticut, Florida, Iowa, Minnesota, Nebraska, Oklahoma, Oregon, South Dakota, Washington and Wisconsin. Basic science requirements were established in Michigan but no examinations were given

in 1939 because of an injunction suit which was decided in favor of the board early in 1940 and examinations will be given during 1940. The basic science law in South Dakota went into effect Oct. 1, 1939. Florida enacted a law June 12, 1939, which became effective ninety days thereafter. The years in which the various acts were enacted are shown in table 1.

TABLE 1.—States Having Basic Science Laws and Year of Enactment

Arizona.....	1933	Minnesota.....	1927
Arkansas.....	1929	Nebraska.....	1927
Colorado.....	1937	Oklahoma.....	1937
Connecticut.....	1925	Oregon.....	1933
District of Columbia.....	1929	South Dakota.....	1939
Florida.....	1939	Washington.....	1927
Iowa.....	1935	Wisconsin.....	1925
Michigan.....	1937		

Statistics based on the number of candidates certified in 1939 and those who failed to receive certification, together with the totals for other years shown for comparison, are included in the accompanying tables. Similar data have been published in the State Board Number of THE JOURNAL since 1928.

The subjects in which examinations are conducted in the respective states and the District of Columbia are given in table 2. The subjects included in basic science examinations are specified by the statutes. The examination boards may neither add to nor subtract from such subjects. All boards examine in anatomy, pathology and physiology; thirteen examine in chemistry, eleven in bacteriology, seven in hygiene, two in diagnosis and one in hygiene and public health.

Applicants examined during 1939 in the various groups—physicians, osteopaths, chiropractors and those unclassified—are included in table 3. The fourteen boards functioning in 1939 examined 1,359 candidates. Of this number 1,141 were doctors of medicine, 114 osteopaths and twenty-seven chiropractors; for seventy-

physicians examined, 11.2 per cent failed, of the osteopaths 43.9 per cent failed, of the chiropractors 77.8 per cent, and of those unclassified, 65 per cent. Among those passed there were 1,013 physicians, sixty-four osteopaths, six chiropractors and twenty-seven unclassified. Minnesota examined the largest number, 268 of whom, 21.6 per cent, failed. The next largest number, 185, were examined in Wisconsin, with 4.3 per cent failures. Osteopaths were examined in Arkansas, Colorado, Connecticut, Iowa, Minnesota, Nebraska, Oregon, Washington and Wisconsin. In fact, osteopaths were examined in every state except Arizona, District of Columbia, Florida, Oklahoma and South Dakota. Chiropractors were examined in Connecticut, Iowa, Minnesota, Oklahoma, Washington and Wisconsin. None were examined in Arizona, Arkansas, Colorado, District of Columbia, Florida, Nebraska, Oregon and South Dakota. The highest percentage of failures, 43.1, was in Iowa, which examined thirty-three physi-

TABLE 3.—Applicants Examined, 1939

	Physicians or Medical Students				Osteopaths		Chiropractors		Unclassified		Total Examined	Passed	Failed	Percentage Failed
	P	F	P	F	P	F	P	F	P	F				
Arizona.....	37	0	0	0	0	0	0	0	18	0	55	37	18	32.7
Arkansas.....	64	0	7	4	0	0	0	0	0	0	75	71	4	5.3
Colorado.....	24	6	4	2	0	0	1	0	0	0	37	29	8	21.6
Connecticut.....	129	9	1	1	1	2	0	0	0	0	143	131	12	8.4
District of Columbia.....	29	7	0	0	0	0	0	0	0	0	36	29	7	19.4
Florida.....	34	6	0	0	0	0	0	0	0	0	40	34	6	15.0
Iowa.....	25	8	24	20	1	0	12	13	0	0	109	62	47	43.1
Minnesota.....	196	42	6	5	2	1	0	10	0	0	268	210	58	21.6
Nebraska.....	70	21	1	5	0	0	1	0	0	0	98	72	26	26.5
Oklahoma.....	65	4	0	0	0	0	1	0	0	0	70	65	5	7.1
Oregon.....	68	15	2	3	0	0	0	0	0	0	100	70	30	30.0
South Dakota.....	2	0	0	0	0	0	0	0	0	0	2	2	0	0.0
Washington.....	113	10	2	4	0	11	0	1	0	0	141	115	26	18.4
Wisconsin.....	157	0	17	6	2	0	1	2	0	0	185	177	8	4.3
Totals—Examined...	1,141		114			27		77		1,359				
Totals—Passed.....	1,013		64			6		27		1,110				
Totals—Failed.....	128		50			21		50		249				
Percentage—Failed..	11.2		43.9			77.8		65.0		18.3				

TABLE 2.—Subjects of Examinations

	Examinations Required in								Hygiene and Public Health
	Anat. omy	Bacteri- ology	Chem- istry	Diag- nosis	Hy- gene	Pathol- ogy	Physi- ology		
Arizona.....	+	+	+	..	+	+	+	+	..
Arkansas.....	+	+	+	+	+	+	..
Colorado.....	+	+	+	+	+	+	..
Connecticut.....	+	+	+	+	+	+	..
Dist. Columbia	+	+	+	+	+	+	..
Florida.....	+	+	+	+	+	+	..
Iowa.....	+	+	+	..	+	+	+	+	..
Michigan.....	+	+	+	+	+	+	+
Minnesota.....	+	+	+	+	+	+	..
Nebraska.....	+	+	+	..	+	+	+	+	..
Oklahoma.....	+	+	+	+	+	+	..
Oregon.....	+	..	+	..	+	+	+	+	..
South Dakota.....	+	+	+	+	+	+	..
Washington...	+	..	+	..	+	+	+	+	..
Wisconsin.....	+	+	..	+	+	+	..

seven it was not possible to determine what profession they represented. In applying for a basic science certificate it is not necessary in several of the states to mention the school of practice, but by checking the biographic records of the American Medical Association it has been possible to determine what profession the majority of the candidates represented. The remainder compose the unclassified group. Of all examined, 1,110 passed and 249 failed, 18.3 per cent. Of all

cians, forty-four osteopaths, seven chiropractors and twenty-five unclassified candidates.

The number of certificates granted by examination, reciprocity and endorsement are recorded in table 4. A total of 1,110 certificates were granted after examination; 1,013 were issued to physicians, sixty-four to osteopaths, six to chiropractors and twenty-seven to persons who were unclassified. There were also 1,021 certified without examination, by reciprocity and endorsement, consisting of 727 physicians, 125 osteopaths, 164 chiropractors and five who were unclassified. South Dakota, which enacted its law in 1939, registered 734 without examination, 470 physicians, 104 osteopaths and 160 chiropractors, representing apparently all those in practice in the state when the law became effective Oct. 1, 1939. Other than this state, Iowa accepted the greatest number without examination, seventy, of whom sixty-seven were physicians, two osteopaths and one was unclassified. Arizona, Connecticut, Florida, Oklahoma and Washington licensed none without examination. Arizona, Florida and Washington have no reciprocal agreements. Chiropractors and those unclassified were each licensed without examination in three states. Altogether 2,131 individuals received basic science certificates in 1939 in fourteen states, ranging from thirty-seven in Arizona to 736 in South Dakota.

Table 5 shows the number of candidates examined, or certified by reciprocity or endorsement, from 1927 to 1939 inclusive. In 1928, when five boards were functioning, there were 646 physicians examined, of whom sixty, or 9.3 per cent, failed, and fifty-nine other practitioners, of whom twenty-eight, or 47.5 per cent,

TABLE 4.—*Certificates Issued by Examination, Reciprocity and Endorsement, 1939*

	Examination					Reciprocity and Endorsement					Registered
	Physicians or Med. Students	Osteopaths	Chiropractors	Unclassified	Totals	Physicians or Med. Students	Osteopaths	Chiropractors	Unclassified	Totals	
Arizona.....	37	0	0	0	37	0	0	0	0	0	37
Arkansas.....	64	7	0	0	71	28	7	0	0	35	106
Colorado.....	24	4	0	1	29	9	1	3	0	13	42
Connecticut.....	129	1	1	0	131	0	0	0	0	0	131
District of Columbia	29	0	0	0	29	29	0	0	0	29	58
Florida.....	34	0	0	0	34	0	0	0	0	0	34
Iowa.....	25	24	1	12	62	67	2	0	1	70	132
Minnesota.....	196	6	2	6	210	48	1	0	0	49	259
Nebraska.....	70	1	0	1	72	13	0	0	0	13	85
Oklahoma.....	65	0	0	0	65	0	0	0	0	0	65
Oregon.....	68	2	0	6	76	9	7	0	2	18	94
South Dakota.....	2	0	0	0	2	470	104	160	0	734	736
Washington.....	113	2	0	0	115	0	0	0	0	0	115
Wisconsin.....	157	17	2	1	177	54	3	1	2	60	237
Totals.....	1,013	64	6	27	1,110	727	125	104	5	1,021	2,131

failed. In 1939, 1,740 physicians and 391 other practitioners were certified. During the thirteen year period a total of 10,511 physicians were examined, of whom 1,250, 11.9 per cent, failed and 1,149 other practitioners, of whom 628, 54.7 per cent, failed. During this period 2,258 physicians were certified without examination, while only 386 other practitioners, including 294 endorsed in South Dakota in 1939, were so registered.

Altogether, 12,426 certificates have been issued by basic science boards since 1927, of whom 11,519 were

TABLE 5.—*Total Candidates, 1927-1939*

Number of Boards	Physicians or Medical Students						Other Practitioners						
	Examinations					Total Certified	Examinations					Total Certified	
	Examined	Passed	Failed	Percentage Failed	Endorse- ment		Examined	Passed	Failed	Percentage Failed	Endorse- ment		
1927	5	305	279	26	8.5	26	305	22	15	7	31.6	1	16
1928	5	646	586	60	9.3	19	605	59	31	28	47.5	0	31
1929	7	668	610	68	8.7	75	685	66	31	33	53.0	0	31
1930	7	683	606	79	11.5	118	724	76	30	48	61.5	4	34
1931	7	680	589	94	13.8	141	727	107	48	59	55.1	0	34
1932	7	637	590	67	10.2	106	696	78	44	34	43.6	12	56
1933	8	601	527	74	12.3	120	647	60	30	30	50.0	11	41
1934	0	815	725	90	11.0	127	832	51	26	25	49.0	11	37
1935	0	882	761	121	13.7	110	871	74	33	41	53.4	4	37
1936	10	1,032	891	141	13.7	230	1,121	66	26	40	60.6	13	39
1937	12	1,231	1,061	170	13.8	192	1,253	113	41	73	63.7	10	51
1938	12	1,163	1,020	142	12.3	267	1,293	157	62	88	56.1	26	95
1939	14	1,141	1,013	128	11.2	727	1,740	216	97	121	55.5	234	391
Totals...	10,511	9,261	1,250	11.9	2,258	11,519	1,149	521	628	54.7	386	907	

granted to physicians and 907 to other practitioners. From the high percentage of failures in the other practitioner group it seems apparent that the enforcement of basic science laws affects mostly this group. The object of basic science boards is to provide a means of insuring that all candidates seeking the right to care for sick and injured people shall first possess a reasonable knowledge of the sciences fundamental to the healing art.

NATIONAL BOARD OF MEDICAL EXAMINERS

This year marks the twenty-fifth anniversary of the organization of the National Board of Medical Examiners. When the Board was founded in 1915 by Dr. William L. Rodman, he stated its aims and purposes to be "to establish a standard of examination and certification of graduates in medicine for the whole United States and its territories through which by the cooperation of the state and territorial boards of medical examiners its licentiates may be recognized for licensure to practice medicine." It consists at present of twenty-eight members, including the three surgeon generals of the United States Army, Navy and Public Health Service and one other representative from each of those services, four representatives and one former representative of state licensing boards, two members of the Council on Medical Education and Hospitals of the American Medical Association, three representatives of the Association of American Medical Colleges and twelve members appointed at large.

The preparation for and participation in the World War by the United States materially interfered with the early development of the work of the National Board,

TABLE 1.—*Examinations, 1916-1921*

Date	Total Examined	Passed	Failed	Percentage Failed
October 1916.....	10	5	5	50.0
June 1917.....	12	9	3	33.3
October 1917.....	23	22	6	21.5
January 1918.....	20	18	2	10.0
April 1918.....	23	18	5	20.1
December 1918.....	16	15	1	6.3
June 1919.....	52	51	1	1.9
February 1920.....	48	36	12	25.0
May 1920.....	60	46	14	23.3
February 1921.....	16	11	5	31.3
June 1921.....	40	37	3	7.5
Totals.....	325	268	57	14.3

but since 1922 the number obtaining its certificate has been steadily increasing. The greatest accomplishment has been the acceptance of the certificate as a qualification for licensure by forty-three states, the District of Columbia and four territories.

Statistics are herewith presented regarding the examinations of and the issuance of certificates by the National Board of Medical Examiners. Similar material has been presented in the State Board Number of THE JOURNAL for twenty-two years.

Up to Dec. 31, 1921, eleven examinations were held and 268 candidates were certified. In table 1 are recorded the results for each examination since 1916.

In 1922 the National Board, following a careful study of the detailed report of a commission appointed to study the methods for medical licensure in England, Scotland and France, and also through exchange visits, materially changed its examination plans. The examinations were divided into three parts. Part I, a written examination, covers the work of the first two years of the medical course; part II, likewise a written examination, the work of the last two years, and part III the clinical preparation of the candidate after at least one year's internship.

The data included in the following paragraphs refer to the examination and the issuance of certificates to candidates applying since 1922 and include tables enumerating the results of examinations in parts I, II and III for each calendar year, indicating those who passed and failed examinations, and those certified.

Candidates are required to take all six subjects of part I at a regular examination period unless entitled to take an incomplete examination or electing to take a divided examination. An incomplete examination is arranged for candidates taking part I at the end of their second medical year in schools in which the third year

TABLE 2.—Examinations in Part I in 1939 and 1922-1939

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
February.....	206	161	17	28	14.8
June.....	1,048	666	234	127	16.0
September.....	480	221	180	70	21.1
Totals.....	1,734	1,048	460	225	17.7
1922.....	386	263	58	67	20.3
1923.....	507	349	77	81	18.8
1924.....	591	415	69	107	20.5
1925.....	608	400	50	158	23.3
1926.....	625	436	104	85	16.3
1927.....	702	452	159	91	16.8
1928.....	843	533	231	79	12.9
1929.....	1,096	675	331	90	11.8
1930.....	1,260	801	345	114	12.5
1931.....	1,277	755	425	07	11.4
1932.....	1,307	847	371	89	9.5
1933.....	1,234	782	316	136	14.8
1934.....	1,241	809	347	85	9.5
1935.....	1,264	785	410	69	8.1
1936.....	1,344	858	363	123	12.5
1937.....	1,435	871	415	149	14.6
1938.....	1,653	985	508	160	14.0
1939.....	1,734	1,048	460	225	17.7
Totals.....	19,109	12,064	5,039	2,005	14.3

curriculum includes courses in one or two subjects of this part. The subjects thus postponed may be taken at any examination period after the candidate has completed them in his medical school. Any candidate not entitled to take an incomplete examination in part I may, if he so elects, take a divided examination by writing any four subjects at one time and the remaining two within thirteen months, but after at least one semester of study. Incomplete examinations were not

TABLE 3.—Examinations in Part II in 1939 and 1922-1939

Date	Total Examinations	Passed	Incomplete	Failed	Percentage Failed
February.....	163	149	0	14	8.6
May.....	468	451	0	17	3.6
June.....	222	206	0	10	7.2
September.....	85	78	0	7	8.2
Totals.....	938	884	0	54	5.8
1922.....	109	90	0	19	17.4
1923.....	192	170	2	20	10.5
1924.....	267	227	0	40	15.0
1925.....	342	309	0	33	9.6
1926.....	381	334	1	46	12.1
1927.....	361	314	1	46	12.8
1928.....	410	371	1	38	9.3
1929.....	465	399	19	47	10.5
1930.....	620	543	7	70	11.4
1931.....	719	630	2	87	12.1
1932.....	732	674	0	58	7.9
1933.....	714	651	0	63	8.8
1934.....	633	583	0	50	7.9
1935.....	689	620	0	69	10.0
1936.....	768	716	2	50	6.5
1937.....	855	806	1	51	6.0
1938.....	861	815	0	46	5.3
1939.....	938	884	0	54	5.8
Totals.....	10,036	9,133	36	887	8.9

included when percentages were being computed, since they represent neither a candidate eligible for certification nor a failure.

A candidate who fails to make an average of 75 per cent but has received grades of at least 75 per cent in three or more main divisions is required to repeat those divisions, either in whole or in part, in which he received grades below 75 per cent. Grades below 60 per cent in any of the subdivisions are not acceptable if the grade

for the corresponding main division is under 75 per cent. In such case the candidate is "referred" in this subdivision and required after a three months interval to pass a reexamination. The privilege of a second reexamination is determined in each case by the board. "Referred" candidates are likewise excluded from the statistics.

Three examinations in part I were held in 1939. Table 2 contains the results of these examinations together with totals for seventeen years. During 1939, 1,734 examinations were given; 1,048 candidates passed, 460 were given incomplete examinations and 225, 17.7 per cent, failed.

Four examinations were given in part II, figures for which appear in table 3. Altogether 938 were so examined; 884 passed and fifty-four, 5.8 per cent, failed.

Since 1922 a total of 19,109 examinations have been given in part I and 10,056 in part II. From 1922 to 1939 inclusive, 12,064 were successful in passing part I and 9,133 in passing part II. The figures cover the totals of each examination given during a calendar year and include some who fail and are reexamined during the same year and also some who pass parts I and II

TABLE 4.—Examinations in Part III

	Total Examinations	Passed	Failed	Percentage Failed
1922.....	22	22	0	0.0
1923.....	52	51	1	1.2
1924.....	126	120	6	4.8
1925.....	219	206	13	5.9
1926.....	255	243	12	4.7
1927.....	293	272	21	7.2
1928.....	322	306	16	5.0
1929.....	352	337	15	4.3
1930.....	420	401	19	4.5
1931.....	437	419	18	4.1
1932.....	550	522	28	5.1
1933.....	551	526	25	4.5
1934.....	507	548	19	3.4
1935.....	538	578	20	3.8
1936.....	570	547	23	5.0
1937.....	668	630	38	5.7
1938.....	706	632	24	3.4
1939.....	770	729	41	5.3
Totals.....	7,514	7,169	345	4.6

Between 1916 and 1921 a total of 325 were examined, of whom 263 passed and 57, 14.3 per cent, failed. Total certificates awarded, 7,437.

in the same year. They represent therefore examinations conducted rather than individuals examined. In the eighteen year period since 1922 there have been 2,005 failures in part I, 14.3 per cent, and 887 in part II, 8.9 per cent.

The results of examinations in part III for the eighteen year period 1922 to 1939 inclusive are presented in table 4. In 1939, 770 were examined, as compared with only twenty-two in 1922. Of those examined in 1939, forty-one, or 5.3 per cent, failed. The highest percentage of failures was in 1927, when 293 were examined and twenty-one, 7.2 per cent, failed. In eighteen years 7,514 were examined, of whom 7,169 were granted certificates and 345, 4.6 per cent, failed. Here again a candidate having failed may subsequently receive a certificate in the same year.

From 1916 to 1921, when the examination was not given in three parts, 325 were examined, of whom 268 passed and fifty-seven, 14.3 per cent, failed.

Altogether from 1916 up to and including 1939, 7,437 certificates have been granted.

The number of persons examined during any one year is given in table 5. The classification as passed or failed, in cases in which more than one examination has been taken in a given year, was based on the results of the last examination during the year in question.

For example, if in 1939 a candidate passed part I but later failed part II, he is listed as having failed. Taking this into consideration, there were 3,217 who took at least one of the examinations of the National Board of Medical Examiners during 1939, as compared with 525 in 1922. A total of 33,976 were examined in one or more of the examinations in the eighteen years shown, of whom 26,290 passed, 4,823 took incomplete examinations and 2,863, 9.8 per cent, failed.

Examinations in part III were held during 1939 at which 729 were successful. Graduates of sixty-four approved schools in the United States and four in

TABLE 5.—Parts I, II and III, Excluding Duplications

	Total Examined	Passed	Incom- plete	Failed	Percentage Failed
1922.....	525	383	58	86	18.4
1923.....	775	594	79	102	14.7
1924.....	978	756	69	153	16.8
1925.....	1,167	915	50	202	18.1
1926.....	1,161	930	103	126	11.9
1927.....	1,248	947	142	159	14.4
1928.....	1,430	1,101	211	118	9.7
1929.....	1,723	1,288	319	124	8.8
1930.....	2,044	1,547	322	175	10.2
1931.....	2,218	1,632	410	176	9.7
1932.....	2,342	1,850	355	137	6.9
1933.....	2,277	1,806	280	191	9.6
1934.....	2,261	1,801	330	130	6.7
1935.....	2,363	1,831	408	129	6.6
1936.....	2,517	1,939	353	175	8.1
1937.....	2,735	2,151	397	187	8.0
1938.....	2,980	2,306	493	191	7.7
1939.....	3,217	2,473	442	302	10.9
Totals.....	33,976	26,290	4,823	2,863	9.8

TABLE 6.—Diplomates from Individual Medical Schools, 1939

Certificates Awarded		Certificates Awarded	
Univ. of Arkansas.....	3	Long Island Coll. of Med.	15
Coll. of Med. Evan.....	80	N. Y. Med. Coll.	62
Stanford Univ.....	3	New York Univ.....	27
Univ. of California.....	2	Syracuse Univ.....	1
Univ. of Southern Calif.....	1	Univ. of Buffalo.....	5
Univ. of Colorado.....	10	Univ. of Rochester.....	2
Yale University.....	44	Duke Univ.....	41
George Washington Univ.....	16	Univ. of Cincinnati.....	3
Georgetown Univ.....	24	Western Reserve Univ.....	1
Howard Univ.....	1	Univ. of Oklahoma.....	3
Emory Univ.....	1	Univ. of Oregon.....	1
Univ. of Georgia.....	1	Hahnemann Med. Coll.....	4
Loyola Univ.....	6	Jefferson Med. Coll.....	8
Northwestern Univ.....	14	Temple Univ.....	4
Rush Med. Coll.....	20	Univ. of Pennsylvania.....	3
Univ. of Chicago.....	5	Woman's Med. Coll.....	1
Univ. of Illinois.....	3	Med. Coll. of So. Car.....	1
State Univ. of Iowa.....	3	McHarr Med. Coll.....	2
Univ. of Kansas.....	1	Univ. of Tennessee.....	1
Univ. of Louisville.....	1	Vanderbilt Univ.....	1
Louisiana State Univ.....	2	Baylor Univ.....	1
Tulane Univ.....	3	Univ. of Texas.....	1
Johns Hopkins Univ.....	10	Univ. of Vermont.....	17
Univ. of Maryland.....	3	Med. Coll. of Virginia.....	4
Boston Univ.....	41	Univ. of Virginia.....	1
Harvard Med. Sch.....	55	Marquette Univ.....	5
Tufts Coll. Med. Sch.....	53	Univ. of Wisconsin.....	1
Univ. of Michigan.....	5	McGill Univ.....	5
Wayne Univ.....	1	Univ. of Alberta.....	1
Univ. of Minnesota.....	9	Univ. of Toronto.....	3
St. Louis Univ.....	10	Univ. of Western Ontario.....	1
Washington Univ.....	4	Foreign.....	13
Creighton Univ.....	2		
Univ. of Nebraska.....	1		
Albany Med. Coll.....	13		
Columbia Univ.....	11		
Cornell Univ.....	15		
		Totals.....	729

Canada and thirteen graduates of six faculties of medicine abroad were represented. Table 6 records the number of diplomates from each school certified in 1939. At the College of Medical Evangelists, students are required to pass parts I and II as a prerequisite to receiving their diploma. The comprehensive qualifying examination, or part I of the examination of the National Board, has been required of all medical students entering Yale University School of Medicine

since the fall of 1937. Students of Georgetown University School of Medicine are urged to take the examinations of the National Board. Students admitted to Boston University School of Medicine subsequent to 1937 are required to pass part I in order to supplement the qualifications for promotion to the third year class.

TABLE 7.—Licenses Granted on the Basis of National Board Certificates, 1939

Alabama.....	4	New Hampshire.....	11
Arizona.....	1	New Jersey.....	25
Arkansas.....	2	New Mexico.....	6
California.....	29	New York.....	210
Colorado.....	6	North Carolina.....	12
Connecticut.....	32	North Dakota.....	4
District of Columbia.....	27	Ohio.....	9
Georgia.....	7	Oklahoma.....	1
Illinois.....	11	Oregon.....	8
Indiana.....	2	Pennsylvania.....	20
Iowa.....	6	Rhode Island.....	14
Kansas.....	3	South Dakota.....	1
Kentucky.....	3	Tennessee.....	2
Maine.....	7	Utah.....	2
Maryland.....	18	Vermont.....	7
Massachusetts.....	101	Virginia.....	5
Michigan.....	13	Washington.....	14
Minnesota.....	9	West Virginia.....	4
Mississippi.....	1	Wyoming.....	2
Missouri.....	10	Hawaii.....	10
Montana.....	3		
Nebraska.....	3	Totals.....	667
Nevada.....	2		

TABLE 8.—States Endorsing Certificates of National Board of Medical Examiners

Alabama	Illinois	Montana	Pennsylvania
Alaska	Indiana	Nebraska	Puerto Rico
Arizona	Iowa	Nevada	Rhode Island
Arkansas	Kansas	New Hampshire	South Carolina
California	Kentucky	New Jersey	South Dakota
Canal Zone	Maine	New Mexico	Tennessee
Colorado	Maryland	New York	Utah
Connecticut	Massachusetts	North Carolina	Vermont
Delaware	Michigan	North Dakota	Virginia
Dist. of Columbia	Minnesota	Ohio	Washington
Georgia	Mississippi	Oklahoma	West Virginia
Hawaii	Missouri	Oregon	Wyoming

All students before entering the senior class at the New York Medical College must have taken part I of the examination of the National Board. While the certificate is not required by these schools, their graduates and, in addition, those of Harvard, Tufts and Duke universities, represented the majority of those certified.

Diplomates licensed on the basis of their credentials increased from two in 1917 to 667 in 1939, 5,460 having been so licensed since the National Board was formed. However, 7,437 have received the certificate of the board. In 1939 diplomates were registered on the basis of credentials in forty-one states, the District of Columbia and Hawaii. The number so registered will be found enumerated in table 7.

The certificate of the National Board of Medical Examiners is granted recognition by the licensing boards of forty-three states and the District of Columbia, Alaska, the Canal Zone, Hawaii and Puerto Rico (table 8). Some of these states have additional requirements.

Diplomates of the National Board of Medical Examiners are admitted to the final examination given by the Conjoint Examining Boards of England and Ireland and the Triple Qualification Board of Scotland. The certificate is accepted by the United States Public Health Service in lieu of the usual written examination. The certificate in the past has been recognized by Lebanon, South Africa, Spain, Syria and Turkey.

Examinations in parts I and II are held at class A medical schools where there are five or more candidates desiring to be examined, and part III is held in twenty-two established centers throughout the United States.

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SATURDAY, APRIL 27, 1940

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.
2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.
3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.
4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.
5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.
6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.
7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.
8. Expansion of public health and medical services consistent with the American system of democracy.

THE STATUS OF MEDICAL LICENSURE

Medical licensure statistics presented in this issue of THE JOURNAL reveal that, in 1939, 6,043 physicians were licensed (for the first time) to practice medicine. Here is no indication of a dearth of doctors. Quality, however, is more important than quantity and in this respect the situation is far from satisfactory. One hundred and ninety-five graduates of unapproved schools were admitted to practice in thirteen states (chart 1, page 1654), Massachusetts, Illinois, Ohio and New York heading the list. In these four states there were licensed, respectively, seventy-nine, fifty-one, thirty-six and twelve graduates of unapproved medical schools.

A still more serious degradation of the standards of medical practice results from the trend in recent years to abolish the restrictions which have heretofore governed the practice of osteopathy. In seven states medical licenses have been issued to 118 osteopaths who are

not graduates of any medical school. New Jersey has issued forty-five such licenses and Texas thirty-six (chart 2, page 1656). Law making bodies seem to have forgotten that when osteopathy was seeking legal recognition its advocates stoutly maintained that it was a system of healing having nothing to do with medicine and that it would be most unjust to require practitioners of osteopathy to undergo the same training and meet the same educational requirements as doctors of medicine.

Medical journals and the public press have commented on the numbers of medical licenses issued to graduates of schools outside the United States and Canada. The facts are graphically presented in chart 3 (page 1658). Twenty-eight states and the District of Columbia licensed 925 graduates of foreign schools, New York heading the list with 497; New Jersey with eighty-five and Illinois with eighty placed second and third. Some of these 925 foreign graduates are citizens of the United States who studied abroad because they had failed to secure admission to medical schools in this country; the majority are Europeans who sought asylum in the United States.

POSSIBLE ROLE OF ASCORBIC ACID IN ANIMAL TISSUES

The availability of ample quantities of synthetic ascorbic acid has made possible extensive studies of the physical, chemical and physiologic properties of this vitamin.¹ Among the many properties of ascorbic acid, its reversible oxidation-reduction behavior has been extensively examined. The oxidation of ascorbic acid with the formation of dehydroascorbic acid and the reduction of the latter to the vitamin again has been studied in physical-chemical and physiologic systems. The data obtained have led to the suggestion that one of the chief functions of ascorbic acid in animal tissues is that of a reversible oxidation-reduction system, acting as a carrier in a respiratory system in which a substrate may be combusted and oxygen utilized.

The concept of ascorbic acid functioning in animal tissues as a reversible oxidation-reduction carrier appears to be supported by a variety of evidence. Physical-chemical measurements of the oxidation-reduction potential of the vitamin have made it evident that a number of naturally occurring tissue constituents could bring about the oxidation of ascorbic acid. Thus the cytochrome-indophenol oxidase system has been demonstrated to function as a catalyst for the aerobic oxidation of ascorbic acid, and there is evidence that this system is chiefly responsible for the slow aerobic oxidation of the vitamin in excised animal tissues.² The oxidized form of the vitamin might then undergo reduction by naturally occurring substances like glutathione.

1. C. G. King (Physiol. Rev. 16: 238 [April] 1936) presents a review of vitamin C, ascorbic acid.
2. Stoltz, Elmer; Schulze, M. O.; Harrer, C. J., and King, C. G.: J. Biol. Chem. 122: 497 (Jan.) 1938.

thione or by the fixed sulfhydryl groups of tissues. The existence of both ascorbic acid and dehydroascorbic acid in animal tissues contributes to the plausibility of hypotheses postulating important roles for vitamin C in oxidation reactions in animal tissues.

Notwithstanding the circumstantial evidence which can be marshaled in support of the theory that ascorbic acid functions as a major respiratory carrier in animal tissues, experimental data have not been presented to confirm unequivocally the suggested respiratory roles. On the contrary, experiments designed to contribute information to this problem have yielded essentially negative results. Liver and kidney tissue obtained from scorbutic guinea pigs do not show a decreased respiration capacity despite their depletion in vitamin C. When ascorbate is added to the depleted tissues there is no rise in the true oxygen consumption.³ More recently, King and his collaborators⁴ at the University of Pittsburgh have failed to demonstrate any activity of ascorbic acid as a hydrogen transfer agent in an *in vitro* system containing nicotine hemochromogen, ascorbic acid, coenzyme, dextrose dehydrogenase and dextrose. In addition, it was shown that dehydroascorbic acid is not reduced by reduced cozymase. On the basis of this fact it is not likely that the vitamin has a role as a respiratory carrier in those dehydrogenase systems which depend on cozymase as a coenzyme. Support is not evident in this investigation or in the earlier experiments from the same laboratory⁵ that ascorbic acid functions in animal tissues as a catalytically active, oxidation-reduction carrier. The results, although based essentially on systems constructed *in vitro*, should make definite experimental evidence to the contrary a prerequisite for the acceptance of functions for vitamin C other than that of curing scurvy. It may well be that the efficacy of the vitamin as an antiscorbutic agent is related to a specific role in either oxidation-reduction reactions or to reactions that are responsible to a considerable degree for the transfer of hydrogen or electrons in the oxidation of metabolites. In this connection might be mentioned the striking recent report⁶ that experimental alcaptonuria, as manifested by a urinary excretion of homogentisic acid, may be produced in guinea pigs and in man by the administration of the amino acid tyrosine in a dietary regimen low or lacking in vitamin C. The disappearance of the homogentisic acid from the urine was effected by supplying the vitamin in moderate excess despite the continued administration of tyrosine. Here perhaps is an *in vivo* example of a relation of ascorbic acid to oxidation processes concerned with the complete metabolism of tyrosine. Despite this preliminary suggestion, conclusive evidence for the specific function of

ascorbic acid in the oxidation of metabolites *in vivo* remains to be established. Until these data are available, the many suggested roles for vitamin C in the organism remain, in some instances, unsupported theories and, in others, working hypotheses.

EARLY MEDICAL EDUCATION IN THE PACIFIC AREA

In his presidential address before the Pan-Pacific Surgical Congress in Honolulu, J. Hardie Neil¹ pointed out that most of those attending these congresses came from North America and Australasia. These physicians are mainly representative of the colonial stock, which grappled with difficulties that only those imbued with the spirit of the pioneer could overcome. Likewise in Australasia the early efforts of these pioneers to provide medical education have developed into great universities on the Pacific shore. Three personalities dominated the early history of medical education in California. Dr. Elias Cooper's work in vascular surgery was probably the first laboratory research made in the Pacific countries, and his successful cesarean section was the first recorded in those lands. When Cooper's medical school became moribund it was reorganized by his nephew, Cooper Lane, a surgeon whose work on craniotomy and hysterectomy was based on high attainments in anatomy and physiology. He brought the West into the forefront of the medical world by instituting lectures by Allbutt, Welch, MacEwen, Nicholas Senn, Reginald Fitz and other masters. His family richly endowed the medical college, which eventually was absorbed by Stanford University. Dr. Hugh Toland, a practitioner of both medicine and surgery, founded a medical school which after his death became the medical department of the University of California. Dr. J. P. Widney in 1885 organized the medical department of the University of Southern California and later was president of the university. Dr. Widney is still living in his ninety-seventh year.

Medical education in Australasia commenced in 1863, when a medical school in Melbourne University was established. George Halford, with his insistence on research, and Sir Harry Allen, with his gift of imparting knowledge, laid the foundation for the medical culture of Melbourne. Sydney University opened its medical school in 1883 under the leadership of Anderson Stewart, one of the great personalities in the profession in Australasia. Among others who helped lay a broad foundation on which Sydney Medical School was based were Sir Almroth Wright and Sir Alexander MacCormack. South Australia has a medical school granting degrees after a five year course. Its first lecturer in physiology was Sir Edward Stirling, who discovered and reconstructed the remains of a specimen of *Diprotodon australis*, the largest marsupial that ever existed. In 1936 Queensland instituted a full medical

3. Stotz, Elmer; Harrer, C. J.; Schultze, M. O., and King, C. G.: *J. Biol. Chem.* **120**: 129 (Aug.) 1937.

4. Schultze, M. O.; Harrer, C. J., and King, C. G.: *J. Biol. Chem.* **121**: 5 (Nov.) 1939.

5. Stotz, Schultze, Harrer and King.² Stotz, Harrer, Schultze and King.³

6. Sealock, R. R., and Silberstein, H. E.: *Science* **90**: 517 (Dec.)

1. Neil, J. H.: *Early Medical Education in the Pacific*, New Zealand M. J. **20**: 7 (Feb.) 1940.

course at the University of Brisbane, in which great attention is being paid to social medicine.

The problem of medical education in the South Sea Islands is difficult. Since the natives were given to magic in their care of the sick, missionaries made the first efforts toward medical education. Fiji was first among these islands to institute efforts toward organized medicine. The administration of the Colonial Medical Service in the islands of the Western Pacific was in Fiji, and here Sir William MacGregor wrote the act which constituted a Magna Carta of native rights and privileges. The Rockefeller Foundation entered this field in 1917, where it studied the results of hookworm disease, carried on health surveys and sanitation and was largely instrumental in starting the Central Medical School, which takes native students from nine different island groups. The Rockefeller Foundation gave a half million dollars to Sydney University for a medical building. In 1876 New Zealand University began giving instructions in anatomy and physiology for students, who later went overseas to complete their medical course. Thus the Otago Medical School began. These improvements in the facilities for medical education in the Pacific attracted men for whom routine work is inconsistent with their ambition, and so philanthropy came to their aid with research institutions. The Pan-Pacific Surgical Congresses bring together in Honolulu these great medical personalities from the Pacific countries.

Current Comment

THE TAFT HOSPITAL CONSTRUCTION PLAN

On April 18 Senator Taft of Ohio submitted to the Senate a plan for aiding states to build and operate needed hospital facilities, offered as a substitute for the Wagner-George bill. The Taft amendment is printed in full elsewhere in this issue (page 1676). It would provide that the federal government contribute, for a period of five years and from annual appropriations of \$10,000,000, from 40 to 90 per cent of the cost of construction and improvement of hospitals the plans for which shall have been approved by a National Hospital Advisory Council to be appointed by the Surgeon General of the Public Health Service with the approval of the Administrator of the Federal Security Agency. The amendment recognizes that operating costs may well be an important consideration by providing for federal contributions for maintenance during the five year period, such contributions to be at a rate, during the first year, of \$300 a bed for general and tuberculosis hospitals and \$150 a bed for mental hospitals. During each of the succeeding four years the federal contributions will be at a rate per bed which is 20 per cent less than the rate during the preceding year. Recognition is given in the amendment to the suggestions made by representatives of the American Medical Association at the hearing on the Wagner-George bill that the National Hospital Advi-

sory Council be authorized to assume more important functions than that bill contemplated. Senator Taft proposes, in effect, that all important steps involved in his plan shall be taken only after approval by the council. Title to the hospital facilities to be constructed and maintained under the provisions of the amendment will lodge in the state or governmental subdivision, not in the federal government as proposed in the Wagner-George bill. Apparently it is contemplated not only that new hospitals may be built but that additions to existing hospitals may be constructed as well in case this procedure will best serve the needs of a given community. Thus Senator Taft has availed himself of most of the important suggestions made by representatives of the medical and hospital organizations at the hearings. At the time when his amendment was submitted the subcommittee was about to report on the Wagner-George bill to the Committee on Education and Labor. Presumably the subcommittee will now take Senator Taft's proposed plan also into consideration before making its report.

EDUCATIONAL QUALIFICATIONS OF HEALTH OFFICERS

The Committee on Professional Education of the American Public Health Association has recently published its recommendations concerning the educational qualifications of health officers.¹ In general, these involve the completion of a course leading to the degree of Doctor of Medicine in a recognized medical school, one year's internship in an approved hospital including a service in communicable diseases, a preliminary period of supervised field experience in a well organized department of health and a period sufficient to give acquaintance with public health activities in general and especially an opportunity for the candidate to determine his own liking and fitness for a career in public health. Finally there should be at least one full academic year devoted to the study of public health in a suitable university. These recommendations should have a definite value in educating the public to the necessity for having well trained men in charge of our public health activities. They should also tend to discourage the too frequent practice of appointing state and local health officers as a reward for political service or on account of some personal friendship. Perhaps the most important feature of this pronouncement by the American Public Health Association is the clear recognition of the necessity for medical as well as scientific training. The committee states "Because of the unmistakable trend upon the part of governmental bodies to insist upon the medical degree as a prerequisite to appointment as health officer, and because it is impossible to foresee whether the prospective health officer will be located in a health department where his duties are restricted to administrative functions, it is inadvisable to encourage the candidate for a public health degree to look forward to a career as health officer unless he is also the possessor of a medical degree, and for these reasons our recommendations contain no reference to the nonmedical health officer."

1. The Educational Qualifications of Health Officers, *Am. J. Pub. Health* 29: 1342 (Dec.) 1939.

LABELING OF VITAMIN-CONTAINING ALCOHOLIC BEVERAGES

Under regulations relating to the labeling of alcoholic beverages heretofore promulgated by the Federal Alcohol Administration Division, United States Treasury Department, any irrelevant scientific or technical matter that tends to create a misleading impression or any representation of curative or therapeutic effect which likewise tends to create such an impression is prohibited on labels. On April 4 the administration issued an interpretative ruling¹ declaring that henceforth these regulations will be violated if the labeling of any distilled spirit, wine or malt beverage capable of and made for beverage use refers to vitamin content, whether such reference specifically alludes to curative or therapeutic effects to be derived from the use of the product or merely states the fact that the product contains one or more vitamins. Because of the widespread sale and use of medicinal and dietary remedies containing vitamins, the administration believes that references to vitamins on the labels of alcoholic beverages will lead a substantial number of consumers to believe that the drinking of such beverages will be of curative or therapeutic benefit owing to their vitamin content when the facts in all such cases that have thus far come to the administration's attention indicate that such expectation will not be fulfilled. Bona fide preparations for tonic and special dietary uses, sold as such and not as beverages, which are composed of a base of distilled spirits, wine or malt beverages to which vitamins and possibly tonic ingredients have been added, are not subject to the administration's labeling requirements if they are sold under labels which clearly indicate that they are intended for dietary or tonic rather than beverage use and if their composition conforms to all requirements of the Federal Food, Drug and Cosmetic Act of 1938 with respect to products so labeled.

THE DIRECTORY OF MEDICAL SPECIALISTS

Just available is the new "Directory of Medical Specialists Certified by American Boards,"¹ prepared under the editorship of Dr. Paul Titus with Dr. J. Stewart Rodman as an associate. The work includes the names, addresses and other biographic data concerning 14,000 specialists who have been certified. Separate sections are devoted to the special boards, providing lists of officers, principles of organization, preparation requirements for the examinations and similar material, also biographic listings of those who hold certificates with the following data regarding each man: the birth date, year and place of graduation in medicine, year of certification, office address, hospital and medical school positions, and medical society affiliations. Much of the material is, of course, codified or it would demand far more space than is available. The volume is completed with an alphabetical list of those holding certificates, including the office, city and state address of each person and the name of the special board which granted the certificate. It is planned to issue revised

editions of this directory every two years. Obviously a directory of this type is exceedingly important during that period of transition between the time when the concept of examining boards and specialties was first developed and the time when practically every qualified specialist will be able to indicate that he has the certificate of one of the examining boards.

SEX RATIOS IN FAMILIES WITH HEMOPHILIA

Reports appear of a disturbed sex ratio in families with hemophilia, but some investigators apparently disagree as to the nature of the disturbed ratio. Eley¹ has stated that transmitters of hemophilia usually have more daughters than sons. Birch² observed that the children of persons with hemophilia are predominantly female but that the children of transmitters are predominantly male, the ratio being about 1.7 males to every female. In an effort to shed more light on the question of sex ratios in families with hemophilia, Macklin³ has made a careful reinvestigation of this problem. In hundreds of families of transmitters collected at random from the literature there are apparently more males than females in a ratio of 58.3 to 41.7. Macklin points out, however, that a mere comparison of the total number of males to the total number of females in this manner in an attempt to determine whether there is an excess of males or females in the families of transmitters does not give a true picture. Since most transmitters are recognized only because they have males in their families in whom the disease develops, a more critical analysis which allows for this phenomenon is required. Indeed, according to Macklin, when the data are analyzed and allowances are made for this fact by appropriate mathematical means, the excess is found to be not real but only apparent. She concludes that there is no greater tendency to the production of males in the families of transmitters than there is in the families of other women and that a transmitter is not more apt to have sons than daughters, or daughters than sons. With regard to the sex ratio of children of persons with hemophilia, Macklin's data, which covered 130 families and more than 500 children, show that there were more females than males in this particular group, the ratio being 54.3 per cent to 45.7 per cent. As this investigator infers, however, it is questionable whether one is justified in concluding from these figures that bleeders in general have more daughters than sons. The group of families studied is comparatively limited and a wider survey may yield different data. In any case the careful investigation of Macklin emphasizes once again the importance of allowing for all possible factors before drawing conclusions in statistical studies of this kind. In cases in which there is seemingly a large distortion of the sex ratio and therefore an apparent infringement of the law of sex determination, one should be particularly careful to consider all the factors which might possibly affect the data before reaching a decision.

1. Federal Register 5:1390 (April 11) 1940.
1. The Directory of Medical Specialists Certified by American Boards, published by Columbia University Press, New York. The price is \$5 per copy.

1. Eley, R. C.: *Internat. Clin.* 2:202 (June) 1936.
2. Birch, Carroll L.: *Hemophilia*, *J. A. M. A.* 99:1566 (Nov. 5) 1932.
3. Macklin, Madge T.: *Sex Ratios in Families with Hemophilia*, *Am. J. Dis. Child.* 58:1215 (Dec.) 1939.

ORGANIZATION SECTION

SUGGESTED SCHOOL HEALTH POLICIES

FOREWORD

The following report on school health policies is submitted to school superintendents, health officers, school physicians and nurses, directors of health and physical education, practicing physicians and dentists, and others interested in school health programs as a preliminary report for study, criticism and discussion. During the process of its preparation, helpful suggestions have been received from many sources and a number of professional groups have used it for group discussions.

In all, eight different national groups or committees have had some contact with or are interested in "Suggested School Health Policies." These groups are listed alphabetically together with a brief statement of their action:

1. AMERICAN ASSOCIATION FOR HEALTH, PHYSICAL EDUCATION AND RECREATION (a department of the National Education Association). "Suggested School Health Policies" was submitted to the president of this organization in October 1939, and during March and April 1940 several district meetings used it for discussion. Its executive committee has approved publication for study and discussion but without specific approval of content.

2. AMERICAN ACADEMY OF PEDIATRICS. The American Academy of Pediatrics distributed copies of the report to school health committees in many states, and its Committee on School Health has given it official approval.

3. AMERICAN MEDICAL ASSOCIATION. Four sections of the American Medical Association, namely the sections on (1) Laryngology, Otology and Rhinology, (2) Ophthalmology, (3) Pediatrics and (4) Preventive and Industrial Medicine and Public Health, officially approved the tentative reports submitted to them.

4. AMERICAN PUBLIC HEALTH ASSOCIATION. Three sections of this organization approved the preliminary report, namely the sections on (1) Maternal and Child Health, (2) Public Health Education and (3) Epidemiology. Each of these sections offered numerous helpful suggestions, which have been incorporated in the revised material. The Maternal and Child Health Section, formerly the Child Hygiene Section, was the first group to which the report was submitted. This section approved the report as submitted and referred it for consideration by other sections. The final report will be submitted for approval by the American Public Health Association.

5. AMERICAN SCHOOL HEALTH ASSOCIATION. "Suggested School Health Policies" was fully discussed at the last annual meeting of this group, and the report approved by its School Health Policies Committee.

6. EDUCATIONAL POLICIES COMMISSION. This group, representing the National Education Association and the American Association of School Administrators, has allotted time at its next meeting for consideration of this report. A copy has been sent to each member.

7. JOINT COMMITTEE ON HEALTH PROBLEMS IN EDUCATION OF THE NATIONAL EDUCATION ASSOCIATION AND AMERICAN MEDICAL ASSOCIATION. In 1935 the Joint Committee published a report entitled "A Preliminary Study of Group Opinions Relating to Certain School Health Policies." That publication stimulated further consideration of school health policies, which in turn led to the present "Suggested School Health Policies." The Joint Committee considered a preliminary report at its 1939 annual meeting and at its 1940 annual meeting voted approval for publication, study and discussion.

8. NATIONAL ORGANIZATION FOR PUBLIC HEALTH NURSING (School Nursing Section). Approval, in principle, was given by this group as well as many constructive suggestions.

"Suggested School Health Policies" is an attempt to integrate the views of many professional groups regarding various phases of school health programs. It is hoped that they will be viewed critically and that constructive suggestions will be offered for their clarification, modification and improvement.

This is a preliminary report approved by some groups, approved subject to minor changes by others, and discussed by still other groups without specific action. It is hoped that all the groups will appoint school health policies committees and cooperate in the preparation of a final report which will again combine, as far as possible, the group opinions of all interested in and concerned with school health programs.

INTRODUCTION (Abstract)

This statement of school health policies is planned to delineate the responsibilities of schools and to relate the school health program to the health programs and activities of other groups. In other words, it is an attempt to outline those things which schools should and should not do in the field of health. It will have fulfilled its function if it promotes study of school health programs and encourages thoughtful planning of procedures by which schools may contribute to individual and community health.

There are many groups interested in child health, especially parents, teachers, physicians, dentists, nurses, health departments, welfare agencies, departments of education, civic clubs and parent-teacher associations.

Pupils of all ages have health interests and, as they grow older, assume increasing responsibility for their own health care.

It is not necessary to mention the interest of other groups to reach the conclusion that no one professional group nor one social group has a monopoly of interest and responsibility for children's health. Improved child health will result not from the activities of one group or one organization but from the harmonious working together of many groups. This is one reason for considering a definite statement of school health policies important.

SCHOOL RESPONSIBILITIES

The various activities of schools for promoting and protecting pupil health and for education regarding health may be grouped in many different ways. For purposes of discussion and simplification and in order to avoid confusing terminology, school health responsibilities will be grouped under eight headings. Attention is called to the divisions being made to simplify and aid discussion, because the committee does not imply that each division is of equal importance or an iron-bound independent unit. Rather than this we emphasize the interrelationship of each unit and the overlapping of each division with all others. For example, although there is a division "health instruction," opportunities for health education permeate all divisions of the school

health program and the report will call attention to health education possibilities in all contacts of physicians and nurses with pupils, parents and teachers.

The school health program should:

1. Provide a healthful environment.
2. Have a planned program for the care of accidents occurring at school and sudden sickness.
3. Have a planned program to assist the community program for the prevention and control of communicable disease.
4. Provide a planned, graded program of health instruction.
5. Encourage periodic health examinations, develop a plan whereby such examinations will be obtained, and keep a cumulative record of the conclusions and recommendations.
6. Give special attention to those in need of medical or dental care through a follow-up program which will, where necessary, guide pupils and parents to sources of medical and dental treatment.
7. Provide special education programs for handicapped pupils.
8. Provide supervision and in-service training for teachers.

1. A HEALTHFUL ENVIRONMENT (in full)

There can be no argument regarding school responsibility for a healthful environment. Pupils are required to attend school, and the authority to compel attendance implies the responsibility to provide an environment conducive to growth, learning and health.

SANITATION

The first consideration in providing the desired type of environment is school sanitation, which includes adequate and hygienic lighting, healthful and comfortable heating, proper ventilation, a continuous supply of towels and soap, adequate toilet and washing facilities, modern safety and fire-preventive provisions, ample play areas, a sufficient number of drinking fountains of approved design, seating which prevents fatigue and encourages good posture, and a school room and school building which are clean and attractive. Standards for school sanitary facilities are frequently found in building codes of state departments of education and sanitary regulations of state departments of health. They are also available in textbooks on sanitation and on school health.

The question of school sanitation is not limited to the provision of sanitary facilities but includes the instruction of pupils in the proper care and use of these facilities, the housekeeping procedures used in cleaning the building and the supervision of pupils to see that supplies or equipment are not misused.

It should be pointed out that whereas clean, attractive sanitary schools are a protection against disease, they also have esthetic value and help pupils to learn ideals of sanitation. The importance of sanitation from the health education point of view is too frequently overlooked by teachers as well as physicians, nurses and other health specialists. The survey and evaluation of school sanitary facilities by pupils, under teacher direction, is an excellent health education project. Likewise facilities which make healthful living easy, enjoyable and socially acceptable contribute to health education and enable pupils to learn by doing.

The school custodian, because of his responsibilities for housekeeping procedures and for heating and ventilating, plays an important role in protecting the health of those using school buildings. As the importance of this role receives greater recognition, increased care will be given to the selection and training of custodians. The development of training schools for janitors and the standardization of housekeeping procedures are commendable measures which help schools provide a healthful place for pupils and teachers.

It is the committee's belief that schools should plan for a detailed observation of the sanitary features of each school building at least once each year and that written reports of such observations should be filed with the principal as well as with the superintendent of schools. The report should list definite recommendations for improvements that are needed. The person making this inspection will vary according to who is available and who is most competent. It may be the school physician or school nurse, the health officer or sanitary inspector. In large cities the superintendent of build-

ings will probably have a part in the inspection. In rural schools the teacher or county school superintendent may be the only person available for this purpose. Wherever available, a person particularly informed in matters of health and sanitation should be used.

SOCIAL AND EMOTIONAL ENVIRONMENT

A healthful environment requires more than attention to sanitation; it demands consideration of the school program and of pupils' mental and social environment. Methods of teaching, methods of disciplining, types of examinations, methods of promotion, amount of home work, the curriculum pattern and opportunities for pupil expression are all factors which influence the physical and mental health of pupils.

The school program should be arranged to prevent undue fatigue; there should be plenty of opportunity for activity, and periods of comparatively little activity should be interspersed with those of considerable activity. The program should allow for recess, relaxation and play periods, the frequency and length of which will be governed by changing needs of pupils as they progress from one school level to another. Excessive demands on pupils' strength and energy for either curricular or extracurricular activities are to be avoided.

In considering the arrangement of the school program in relation to health, particular attention should be given to the provision of adequate time for lunch, especially in those schools which require or permit pupils to eat at school. The lunch period should be long enough to permit the leisurely eating of food and the normal social intercourse which is a natural accompaniment of eating. The lunch room should be ample in size to avoid crowding; it should be clean, quiet, light and attractive in decoration. A hurried, strained, tense lunch period in a dark, crowded, noisy, unattractive room is as undesirable for teachers as it is for pupils. In addition to providing adequate time and suitable facilities, schools should consider the lunch period a laboratory in which pupils apply the knowledge of foods learned in the classroom. Observation of pupil lunches will tell whether health instruction in this field has been practical, adequate and successful or merely a learning of words and concepts not associated with actual living.

The mental health of pupils requires that teaching methods give ample opportunity for experiencing success, that disciplinary measures consider pupil personality of greater importance than the rigid application of arbitrary rules and that types of examinations and methods of promotion do not discourage or degrade but stimulate each pupil to do the best he can. Perhaps the most important mental hygiene factor in the school environment is the personality of the teacher. The nagging, scolding, domineering or emotionally unstable individual can seriously injure pupils; the teacher who is kind but firm, sympathetic but exacting, and friendly but reserved exerts a beneficial influence on pupils' mental health.

A healthful environment requires attention to sanitation, to the arrangement of the school program, to the mental hygiene of the classroom and also to the physical health of teachers, custodians, matrons and secretaries. The health of children is not safeguarded when we exclude pupils who are sick but allow a sick teacher, custodian or secretary to remain in school. These people all have more or less close contact with pupils and may cause the spread of communicable disease. For this reason, and because successful teaching is based on teachers' continued good health and because of the value of the example of healthy teachers, a number of schools now require a health examination, including such tests as the tuberculin test and x-ray, of all school employees previous to their employment and periodically thereafter. Such a program constitutes sound school policy and it is recommended that school authorities develop suitable ways for carrying out this policy. It is also recommended that principals assume responsibility for sending from school a teacher or other employee whose health condition may be detrimental to pupils or fellow employees.

Boards of education have responsibilities for the health of teachers, custodians and school secretaries in addition to those mentioned. Teaching and working places must be sanitary and safe. Provision for sick leave is needed. Peace of mind is encouraged by provisions for tenure and retirement. Suitable

rest rooms are needed in school buildings, and teaching and working loads must be reasonable. Boards of education must treat and judge employees and applicants on the basis of ability, with no favoritism or prejudice because of color, creed, friendship or race. By acting with other motives, a board of education may disturb the morale of its entire school staff and seriously interfere with the education of children.

2. CARE OF ACCIDENTS AND SUDDEN SICKNESS (in full)

Wherever large numbers of children are gathered, there are bound to be accidents. In particular, falls, cuts, bruises and sprains occur fairly frequently during the school day. It is expected that schools will do all that is possible to prevent such accidents through safety instruction, through elimination of dangerous or imperfect equipment, through alert supervision and through other safety procedures. It is realized, however, that some accidents will occur despite all precautions.

Again, pupils may become suddenly sick while at school. This sickness may be the onset of a communicable disease—the procedures for which will be discussed later—or it may be an attack of appendicitis, beginning pneumonia, acute indigestion, a toothache, an earache or any other sickness.

SCHOOL RESPONSIBILITIES

What should the schools do in the case of accident or sudden sickness? The committee believes that every school should have a planned, written program for the care of emergencies acknowledging school responsibility for (1) giving immediate care, (2) notifying parents, (3) getting pupils home and (4) guiding parents, where necessary, to sources of further treatment.

It is believed that the school should assume responsibility for the immediate care of those accidents which occur during school sponsored and school supervised activities wherever these activities take place. The school cannot and should not assume responsibility for the care of accidents occurring at home or during non-school sponsored programs.

IMMEDIATE CARE

Immediate care will frequently have to be administered by a teacher because no nurse or physician may be present when an accident occurs or when a pupil becomes sick. For this reason, schools should see that there is always some person at the school who is trained and informed concerning what should and what should not be done in those circumstances. When a nurse is at a school, she will naturally be expected to see that the school's responsibilities are met. In case of serious accident the school may call the school physician (or any other physician easily and quickly obtainable), but the services of the physician so summoned should be limited to necessary immediate emergency treatment. It will be found helpful for each school to have posted in the principal's office, or other convenient location, a list of names, addresses and telephone numbers of physicians in the neighborhood who may be called for emergencies. It is expected, of course, that each school will have first aid supplies available and accessible to all who may give emergency care.

What constitutes immediate emergency care? This, of course, varies with the type of sickness or accident. It may involve the control of hemorrhage in case of cuts, or the covering of a burn with a clean sterile dressing. On the other hand, it may require only the removal of a pupil from the classroom and permission for him to go home. Detailed instructions concerning the emergency care of various conditions, such as headache, cuts, bruises, dog-bites, suspected fractures, painful menstruation or pain in the abdomen, should be prepared by school physicians and copies distributed to each teacher. In general, it may be stated that ordinary first aid measures should be carried out in case of accidents but that the emergency treatment of sickness usually does not require that school personnel administer medication. The prescribing of acetylsalicylic acid for headache or pain, or the giving of sodium bicarbonate, epsom salt or essence of peppermint is unsound school policy and unsound health education. Most cases of early sickness will be best helped if the pupil is sent home and medication

delayed until the physician makes a diagnosis and determines whether drugs are necessary. By following such a policy, schools will avoid the embarrassment caused by a pupil afflicted with a ruptured appendix because the parents postponed having a physician until they saw what effect the medicine given at school would have, and the equally embarrassing situation of giving acetylsalicylic acid for what turns out to be meningitis or brain tumor. In addition to avoiding embarrassment, the school will be doing good health education because it will be teaching that drugs are not taken for every condition which develops but usually only on the recommendation of one who understands their value, their limitations and their dangers.

NOTIFY PARENTS

As soon as possible after an accident or the onset of sickness the school should notify parents, turn over to them the decision as to where further treatment, if necessary, is to be obtained and arrange for the method and means of getting the pupil home. Sometimes this contact can be made by telephone; in other cases the contact will come when some one from the school accompanies the pupil home. No set procedure can be outlined which will cover all cases because of the differences in the economic status of parents, in the nature of the accident or sickness, in the personnel available and in the community resources for medical care. It does seem fitting, however, to warn of the danger of sending a sick or injured pupil home by himself or accompanied only by another pupil. The hazards of traffic and the possibility of no one being at home, of the sickness or injury becoming acutely worse on the way home and of the sickness being communicable are reasons for suggesting that an adult accompany pupils going home because of serious sickness or injury.

When a parent cannot be reached, it may be advantageous to get in touch with the private physician or private dentist of the injured pupil, explain the conditions and ask whether he chooses to provide whatever medical care is needed until such time as the parents can be reached. As an aid in doing this, it is suggested that the name and address of each pupil's private physician and private dentist be recorded on his permanent health record card. These data will, of course, require frequent revision. This procedure will have educative value to parents and pupils as well as be an aid in case of accidents and sudden sickness.

Occasionally there will be need for securing immediate hospital care for a pupil whose parents cannot be located, as for example when a pupil has a suspected skull fracture or suspected ruptured appendix. Naturally every possible effort should be made to reach the parents, but delay in securing medical attention may have serious consequences. There is need to plan for such eventualities. Where there is a city hospital, the use of this institution may be the solution. Likewise the use of city ambulances may be arranged.

In most instances school responsibility for pupils will end when they have been placed in the hands of parents. There are, however, cases in which parents will be unable to afford a private physician or not know where needed medical care can be obtained. The teacher or school health staff should guide these parents to treatment facilities available in the community for care of the needy.

ACCIDENTS IN ATHLETICS

Because of the prominence sometimes given the question of pupils injured in athletics, the committee expresses the opinion that the policies for the care of accidents as outlined in the preceding paragraphs are just as applicable to injuries in interscholastic and intramural athletics as to injuries occurring during other parts of the school program. Physical education teachers should be well trained in first aid procedures and fully informed regarding school policies for the care of those injured.

ACCIDENTS AND EDUCATION

In every accident and case of sudden sickness there are opportunities for health education. At such times the interest of pupils is aroused and they are anxious to know what should and should not be done. Older pupils should care for minor injuries under the supervision of teacher or nurse and the

educational value of such experience may equal the protective value of the first aid. Previously, in discussing cases of sickness at school, it was mentioned that pupils should be taught that medication is usually taken only on the recommendation of some person qualified to diagnose abnormal physical conditions and authorized to prescribe treatment. In both accident and sickness there are opportunities to help pupils develop judgment as to when medical aid should be sought as well as the limitations of care given by those without medical training. By utilizing opportunities for incidental health education present in unusual situations surrounding emergencies, teachers can impart knowledge and develop attitudes which will have far reaching effects.

3. PREVENTION AND CONTROL OF COMMUNICABLE DISEASE (in full)

In all communities, including those in which school physicians and nurses are employed by departments of education, there are certain communicable diseases which are reportable to departments of health and for the control of which the department of health is legally responsible. It is the department of health which formulates and enforces regulations regarding quarantine, isolation and other control measures. Representatives of this department visit each case of reportable communicable disease and give instruction regarding care of the patient and information regarding restrictions on other members of the family. Likewise it is the department of health which lists the duration of exclusion for pupils with various types of communicable disease as well as known contacts.

In certain rural areas, and other areas in which departments of health are not well organized, the teacher and other school personnel are in strategic positions to help prevent the spread of communicable disease. And even where departments of health are well staffed and well organized there are communicable conditions which may not be reportable, such as impetigo, conjunctivitis and pediculosis, the spread of which in schools can best be controlled through the efforts of school personnel. For these reasons, and because of the help schools can give departments of health in preventing and controlling reportable diseases, it is recommended that schools be responsible for the following four procedures:

1. Notify the department of health of suspected cases of reportable communicable disease.
2. Isolate and then send home as soon as possible pupils who seem sick.
3. Encourage parents to keep sick children at home and away from other children.
4. Stimulate parents' interest in smallpox vaccination and diphtheria immunization.

NOTIFY DEPARTMENT OF HEALTH

The department of health can do nothing about reportable diseases until informed of existing cases. Physicians are required to inform the department of health of all reportable diseases they diagnose, but in addition to this it is helpful for schools to give information regarding suspected cases of reportable disease. Usually the school personnel will make no definite diagnosis of disease but will report suspicious cases as having "a rash" or "rash and sore throat" or some similar statement of signs or symptoms. The detail arrangements for notifying departments of health should be worked out locally, but some plan is necessary if efficient preventive and control measures are to be carried out. In a similar manner, departments of health should keep schools informed of the prevalence and distribution of cases of communicable disease.

SEPARATION OF PUPILS

When a pupil in school is suspected of having communicable disease such as measles, scarlet fever or chickenpox, he should be separated immediately from other pupils and arrangements made for sending him home. In addition to sending him home, it may be desirable to have the desk and other fixtures which he has touched washed with soap and water.

It is believed that pupils with beginning colds should be sent home for their own good and for the protection of other pupils. Many communicable diseases start like a cold, and by excluding

pupils with the earliest manifestations of a cold we may exclude some who are developing more serious conditions. Also most colds are communicable and pupils should be protected against exposure to them. A pupil with a beginning cold should have rest in bed and other care obtainable only at home. For these reasons, schools should encourage pupils to stay at home when they have a beginning cold and exclude for at least two days those who have definite, recognizable signs of a beginning cold, as well as those with severe colds or coughs. This suggestion recognizes the impracticability of excluding all pupils with colds while emphasizing the importance of beginning colds and severe colds.

DAILY INSPECTION

As a means of detecting pupils who should not be permitted to stay in school, the morning inspection by classroom teachers has become a recognized and approved procedure for elementary schools. Schools should adopt some form of daily morning inspection and should prepare written instructions for the guidance of teachers. These written instructions should outline various methods of making inspections, list signs and symptoms which warrant exclusion and give procedures to be followed in sending pupils home. They should warn against suggesting a specific diagnosis, caution the teacher against touching pupils during the inspection and emphasize the avoidance of comments which cast reflections on the character or motives of pupils or their parents.

When a pupil is allowed to go home or is sent home because of sickness, parents should be fully informed of the reason and where necessary the teacher or some member of the school health staff should supply information as to where needed treatment is available.

FALSE EMPHASIS ON PERFECT ATTENDANCE

Two procedures occasionally found in schools are iniquitous in their effect on measures to control communicable disease. One is the commendation of pupils with perfect or near perfect attendance with certificates, awards or similar devices. This procedure leads parents to believe that teachers want pupils in school at all times regardless of the pupils' condition. The other bad practice is the allotment of state funds to schools on the basis of the average number of pupils in daily attendance. Whereas attendance awards to pupils make parents anxious to have pupils always in school, the allotment of funds on the basis of average daily attendance makes teachers anxious to force attendance under all conditions. Both practices are condemned as based on the false premise that children are always in condition to attend school. Instead of demanding perfect attendance regardless of pupils' health, schools should urge parents to keep pupils home and in bed if there is any evidence of disease. In addition, commendation should be given to those pupils who protect the health of their classmates by remaining at home when not well.

COOPERATION WITH PARENTS

Many schools notify parents of the occurrence of communicable disease in the classroom of their children. This notification usually includes suggestions as to how parents may recognize the beginning signs of disease, urges that parents keep at home children who show any of these signs, and outlines preventive measures which are available. It also outlines the procedures which the school is using to prevent the spread of disease. Letters of this type are quite helpful. They gain the cooperation of parents—without which communicable disease control cannot be fully effective—and they allay apprehension. They usually result in better health supervision of pupils by their parents.

SMALLPOX AND DIPHTHERIA

School epidemics of smallpox and diphtheria are uncommon nowadays, owing partly to efforts of departments of health and education in teaching their preventability and providing facilities so that treatment is available to all.

It should be the policy of all schools to teach pupils the history of smallpox vaccination and diphtheria immunization and to show the results which have followed their application. In addition to teaching these things, schools should see that mothers of children entering school are fully aware of the necessity for children being protected against these diseases and know sources of treatment.

In each community there should be treatment facilities available for children of all economic levels. In most cases the school personnel will refer parents to their private physician for vaccination and for diphtheria immunization. Where parents cannot afford to pay for the services of a private physician, school personnel will refer children to hospital outpatient clinics, dispensaries, department of health clinics or other facilities which the community provides. As a general rule it is believed undesirable to conduct clinics in schools, although this may be the only way some communities will be able to solve the problem of making treatment available to all.

In their efforts to encourage diphtheria immunization, schools should emphasize this treatment as most needed and effective when children are approximately 1 year old. Conversely, they should avoid creating the impression that diphtheria immunization is not necessary until a child enters school.

Recently the attention of physicians has been directed to suggested preventive treatments for whooping cough and scarlet fever. Because of differences of opinion as to the efficacy of these preventive measures as well as varying views of the advisability of their general application, it is recommended that school personnel do not as yet advocate their use. Patients who ask about the desirability of these measures should be instructed to discuss the matter with their private physicians.

TUBERCULOSIS

At the high school level the most important communicable disease is tuberculosis, which, despite the marked decrease that has occurred during the past few decades, is still the leading cause of death for those between 15 and 25 years of age. School health programs can materially aid in the campaign to eradicate this disease. They can see that high school pupils are given information regarding its cause, the way it spreads and the achievements of Koch, Roentgen and Trudeau, and an understanding of local community activities which are directed toward the control and prevention of the "white plague." In the health service program a case-finding plan utilizing the best known diagnostic measures—such as the Mantoux test, x-rays and fluoroscope—should be developed with the assistance of tuberculosis experts. This case-finding plan and the follow-up of conditions found should be integrated with other community tuberculosis activities and supplement both programs for the care of those with active tuberculosis and case-finding programs among contacts.

CLOSING OF SCHOOLS

Should schools be closed when epidemics occur? This is a perennial question and one about which there have been different opinions and changing views. Whereas a generation ago the usual recommendation was to close the schools, in recent years the consensus of public health officials has been that epidemics in cities can be controlled best if schools remain open. It has been found that when city schools are closed many children play together unsupervised, go to movies together and in other ways have numerous opportunities for contact and for the spread of disease. At the same time lack of supervision results in the occurrence of cases which are not reported to the department of health. On the other hand, if schools are kept open and regular inspections conducted, they can be made a safe place for well children while the sick ones are excluded and supervised by the staff responsible for communicable disease control.

There is a difference between closing schools and delaying the opening of schools. Ordinarily little is accomplished by closing schools after pupils have been exposed to infection; but in the presence of an epidemic at the time schools open in the fall and perhaps after other vacations a delayed opening may avoid bringing together a large unexposed group.

It is believed that a decision regarding the closing of schools when epidemics occur or threaten should be decided locally by answering the following two questions:

1. Are nursing and medical staffs so adequate and the teaching staff so alert that the inspection and supervision of pupils will keep sick pupils out of school?

2. If schools are closed will pupils be kept at home and away from other pupils or will the closing of schools increase opportunities for contact with possible sources of infection?

It is quite possible that these questions will be answered differently in different communities. As a general policy it is suggested that provision be made so that question 1 can be answered affirmatively, in which case schools will be kept open in the face of an epidemic in most large public schools and in thickly settled communities. In smaller communities with scattered homes and chances for personal contact limited, it may be found desirable to close schools. Also in rural communities where pupils are transported in busses, and close contact is unavoidable, it may be desirable to close schools.

(To be continued)

THE TAFT HOSPITAL CONSTRUCTION PLAN

76TH CONGRESS
3D SESSION

S. 3230

IN THE SENATE OF THE UNITED STATES

APRIL 18 (legislative day, April 8), 1940
Ordered to lie on the table and to be printed

AMENDMENT

(IN THE NATURE OF A SUBSTITUTE)

Intended to be proposed by Mr. TAFT to the bill (S. 3230) to promote the national health and welfare through appropriation of funds for the construction of hospitals, viz: Strike out all after the enacting clause and in lieu thereof insert the following:

That the Social Security Act, as amended, is hereby amended by adding at the end thereof the following new title:

"TITLE XII—GRANTS TO STATES FOR HOSPITALS

"SEC. 1201. For the purpose of enabling each State, as far as practicable under the conditions in such State, especially in rural areas and in areas suffering from severe economic distress, to construct and improve hospitals and assist its governmental subdivisions to construct and improve hospitals, and to assist the States for a period of five years in defraying the operating cost of added facilities, and to provide training and instruction of personnel which will be required in connection with the hos-

pitals, there is hereby authorized to be appropriated with respect to general, mental, and tuberculosis hospitals, for the fiscal year ending June 30, 1941, and for each of the four succeeding fiscal years, the sum of \$10,000,000. The sums authorized under this section shall be used for making payments to States which have submitted, and had approved by the Surgeon General of the Public Health Service, State plans for constructing and improving needed hospitals.

"SEC. 1202. (a) A State plan to effectuate the purposes of this title, shall—

"(1) provide for financial participation by the State or by governmental subdivision in which the hospital is located or by both;

"(2) provide for the administration of the plan by the State health agency or for the supervision by the State health agency of any part of the plan administered by another State agency or by a governmental subdivision of the State;

"(3) provide such methods of administration as are found by the Surgeon General of the Public Health Service to be necessary for the proper and efficient operation of the plan, including methods relating to the establishment and maintenance of personnel standards on a merit basis, and methods of establishing and maintaining standards for institutional management and remuneration for such management, such methods to be prescribed by the State agency after consultation with such professional advisory committees as the State agency may establish;

"(4) provide that ownership of real estate, improvements, and equipment acquired in connection with the construction or

improvement of any hospital be vested in the State or in one or more of its political subdivisions;

"(5) provide a system of financial support which will give reasonable assurance of the continued maintenance of such hospitals and of their availability to all persons in the designated area, subject only to the suitability of the hospitals for the particular diseases and conditions of such persons and to the financial arrangement for payment for services rendered to such persons;

"(6) provide for an advisory council or councils, composed of members of the professions and agencies, public and private, that furnish services under the State plan, and other persons having knowledge of the need for hospitals; and

"(7) provide that the wages paid or to be paid to laborers and mechanics employed in the construction of such hospitals are not less than the wages prevailing in the locality for work of a similar nature, as determined or adopted (subsequent to a determination under applicable State or local law) by the Commissioner of Labor Statistics.

"(b) The Surgeon General of the Public Health Service shall approve any plan which fulfils the conditions specified in subsection (a).

"Sec. 1203. There is hereby established the National Advisory Hospital Council (hereafter referred to as the Council) to consist of the Surgeon General, as Chairman, and eight members to be appointed by the Surgeon General with the approval of the Federal Security Administrator. The eight appointed members shall be selected from leading medical and scientific authorities who are outstanding in matters pertaining to hospitals and other public services. Each appointed member shall hold office for a term of four years, except that (1) any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term, and (2) the terms of office of the members first taking office shall expire, as designated by the Surgeon General at the time of appointment, two at the end of the first year, two at the end of the second year, two at the end of the third year, and two at the end of the fourth year after the date of the first meeting of the Council. Each appointed member shall receive compensation at the rate of \$25 per day during the time spent in attending meetings of the Council and for the time devoted to official business of the Council, under this Act, and actual and necessary traveling and subsistence expenses while away from his place of residence upon official business, under this Act.

"Sec. 1204. The Council is authorized to advise the Surgeon General with reference to the carrying out of the provisions of this Act, including (1) the formulation of standards which are necessary to insure the construction of proper buildings and the securing of proper equipment; (2) the method by which personnel may be best trained and instructed; (3) the standards and principles to be considered in approving any State plan.

"Sec. 1205. Any State, or any governmental subdivision within any State, which has submitted and had approved by the Surgeon General a plan in accordance with section 1202 may file application with the Surgeon General for the construction of a general, mental, or tuberculosis hospital. Such application shall contain a description of the site and plans and specifications for such hospital and such other information as may be required by the Surgeon General. Each application shall be submitted to the National Advisory Hospital Council and considered by such Council, which shall approve or reject the same and shall have power to indicate the priority in which approved projects shall receive funds. The Council shall, furthermore, fix the percentage of the cost of said project which shall be paid by the Federal Government, which cost shall in no case be less than 40 per centum or more than 90 per centum of the cost of construction of said hospital and the purchase of equipment therefor, exclusive of the cost of the site. In determining the amount of Federal assistance, the Council shall take into consideration the financial resources of the State making the application, as measured by the per capita income accruing to the inhabitants thereof. The Council shall further determine whether any allotment shall be made for the training and

instruction of personnel in connection with such hospital and whether any allotment shall be made to defray the operating cost of added facilities and shall fix the amount to be allowed for such training and instruction of personnel, which shall in no case exceed 5 per centum of the total allotment; and shall fix the amount to be paid for defraying the operating cost of added facilities. Such amount shall be at a rate of \$300 per added bed for general hospitals and for tuberculosis hospitals, and \$150 per added bed for mental hospitals, during the first year of operation, and during each of the succeeding four years of operation the amounts made available for defraying such operating cost shall be paid at a rate per added bed which is 20 per centum less than the rate per added bed applicable during the preceding year.

"Sec. 1206. The Surgeon General is authorized after receiving the recommendations of the Council (a) to conduct, assist, and foster studies and surveys with respect to needs for hospitalization and problems of hospitalization operation; (b) to approve hospital projects and to allocate available funds to States and governmental subdivisions for such approved projects; (c) to fix the amount and allocate available funds to States and governmental subdivisions for training and instruction of personnel which will be required in connection with an approved hospital; (d) to fix the amount to be paid any State for defraying the operating cost of added facilities during the next five years, and allot available funds therefor; (e) to cooperate with Federal, State, and local health and welfare authorities and with professional agencies; (f) to make inspections with respect to professional service and standards of maintenance of the hospitals constructed under this Act; (g) to adopt such additional means as may be found necessary or appropriate to carry out the provisions of this Act.

"Sec. 1207. From the sums appropriated therefor under the authority contained in section 1201, and the allotments made in accordance with section 1206, payments shall be made to each State which has a plan approved under section 1202 for such amounts as may be fixed by the Surgeon General on the recommendation of the Council. The Surgeon General shall from time to time, but not less than semiannually, determine the amounts to be paid to each State or governmental subdivision to which Federal funds have been allotted, and shall certify such amounts to the Secretary of the Treasury. Upon receipt of each such certification for payment, the Secretary of the Treasury, through the Division of Disbursements, shall pay to the State the amount so certified.

"Sec. 1208. Whenever the Surgeon General of the Public Health Service finds, after reasonable notice and opportunity for hearing to the State agency administering or supervising the administration of any State plan approved under this title, that in the effectuation of administration of such plan there is failure to comply substantially with any requirement of section 1202 (a), he shall notify such State agency that further payments will not be made to the State until he is satisfied that there is no longer any such failure to comply. Until he is so satisfied he shall make no further certification to the Secretary of the Treasury with respect to such State.

"Sec. 1209. There is hereby authorized to be appropriated for the fiscal year ending June 30, 1941, and for each of the four following fiscal years, the sum of \$500,000 for all necessary expenses of the Public Health Service in administering the provisions of this title, including the printing of forms and reports, the making of such studies as will expand and improve the quality of hospital facilities and promote the efficient administration of this title, and for the pay, allowances, and travel expenses of commissioned officers (Regular and Reserve), and other personnel of the Public Health Service assigned to duty in carrying out the purposes of this title in the District of Columbia and elsewhere.

"Sec. 1210. When used in this title, (a) the term 'hospital' includes health, diagnostic, and treatment centers, the equipment thereof, and facilities relating thereto; (b) the term 'State' includes the several States, Alaska, Hawaii, Puerto Rico, and the District of Columbia."

Amend the title so as to read: "A bill providing for grants to States and governmental subdivisions thereof for hospitals and health centers."

MEDICAL LEGISLATION

STATE MEDICAL LEGISLATION

Mississippi

Bills Introduced.—H. 800 proposes to appropriate \$650,000 to be disbursed to approved hospitals caring for the indigent sick in counties in which no state supported charity hospital is operated. The bill proposes also to appropriate \$75,500 to each of the following state charity hospitals: South Mississippi, Matty Hersee, Jackson, Vicksburg and Natchez. H. 973 proposes to appropriate \$50,000 "for expenditure under the supervision of the state board of vocational rehabilitation of disabled persons, and in the treatment of crippled individuals whose restoration may be brought about by said expenditures." The bill also proposes to appropriate an additional \$50,000 "for expenditure under the supervision of the state board of vocational rehabilitation for crippled children's work." H. 1025 proposes that all hospitals qualifying under the provisions of chapter 178, Laws, 1936, shall before being entitled to any money appropriated by the legislature maintain at all times at least two beds for white and two beds for colored maternity cases. The bill also proposes to require all charity hospitals under the supervision of the hospital commission to maintain at all times at least five beds for white and five beds for colored maternity cases.

MEDICAL BILLS IN CONGRESS

Change in Status.—H. R. 9236 has been reported to the House, proposing an additional appropriation of \$75,000 for the preparation of "talking books" for the blind.

Bills Introduced.—Senator Taft, of Ohio, has proposed an amendment to the Wagner-George hospital construction bill, S. 3230, which strikes out all after the enacting clause and inserts new phraseology under which the federal government would, from annual appropriations of \$10,000,000 for five years, contribute from 40 to 90 per cent of the cost of constructing hospitals to be built under plans to be approved by the National

Advisory Hospital Council. Federal aid too would be given for a period of five years in defraying operating costs. Title to hospital facilities constructed under the Taft plan would lodge in the state or political subdivision. A copy of the Taft amendment is printed elsewhere in this issue. Senator Pepper, Florida, has proposed an amendment to the bill making appropriations for the Department of Labor, the Federal Security Agency and related independent agencies. H. R. 9007, under which it is contemplated that \$100,000 shall be made available to the United States Public Health Service for researches, investigations and studies relating to the cause, diagnosis and control of pneumonia, influenza and the common cold. H. R. 9362, introduced by Representative Angell, Oregon, proposes a federal appropriation of \$2,500,000 to construct at Portland, Ore., a hospital for the care and treatment of the insane of the territory of Alaska and of such other classes of persons who are insane or who may require mental treatment as the President may designate for care and treatment in such hospital. H. R. 9425, introduced by Representative May, Kentucky, proposes an appropriation not to exceed \$900,000 for the construction of barracks at the Army Medical Center, District of Columbia.

DISTRICT OF COLUMBIA

Changes in Status.—H. R. 7865 has been reported to the House with amendment, proposing to regulate the practice of dentistry in the District of Columbia. H. R. 8692 has been reported to the House with amendments, proposing to regulate the practice of podiatry in the District of Columbia. As amended, the bill proposes to define podiatry as the "surgical, medical, or mechanical treatment of any ailment of the human foot, except the amputation of the foot or any of the toes; and, also, except the use of an anesthetic other than a local one." H. R. 9284 has been reported to the House, directing the Commission on Licensure to Practice the Healing Art in the District of Columbia to issue a license to practice the healing art to Dr. A. L. Ridings.

WOMAN'S AUXILIARY

Arizona

Mrs. Rollo K. Packard, president, Woman's Auxiliary to the American Medical Association, was the guest speaker before the auxiliary to the Arizona State Medical Society in Phoenix, December 15.

Colorado

Mrs. Lorenz W. Frank, president of the auxiliary to the Colorado State Medical Society, and five other members of the society's board of directors were guests of the auxiliary to the Arapahoe County Medical Society at its meeting in Englewood, January 29.

Florida

The auxiliary to the Polk County Medical Society met in Bartow, December 13. Mrs. L. C. Ingram, president of the auxiliary to the Florida Medical Association, asked the auxiliary to bring to the attention of the public the radio programs of the American Medical Association.

Georgia

Mr. L. W. Murphy, sanitary engineer in the department of typhus control, state board of health, spoke at a public health relations meeting sponsored by the Ware County Medical Society and its woman's auxiliary in Waycross, November 7. Mr. Murphy showed a film entitled "No Good on Earth," showing the damage that is done by rats. Dr. G. E. Atwood, Ware County commissioner of health, was a speaker. Pamphlets on typhus fever were distributed.

The auxiliary to the Baldwin County Medical Society met in Milledgeville recently. Dr. J. H. Litton, county health physician, spoke on health education.

The auxiliary to the Fulton County Medical Society met in November in Atlanta. Dr. Felix B. Welton, who spent seven years in China, spoke on "The Practice of Medicine in China." The auxiliary sponsored a book review of "Inside Europe," by John Gunther, given by Mrs. Robert Church Jr. at the Academy of Medicine in Atlanta, recently.

Texas

The auxiliary to the El Paso County Medical Society met in El Paso, November 11. Dr. I. M. Epstein spoke on "The Child Guidance Clinic."

The auxiliary to the Tarrant County Medical Society was entertained by the auxiliary to the Fort Worth Dental Society, on December 7. December 8, they were guests of Dr. and Mrs. Truman C. Terrell at All Saints Episcopal Hospital in Fort Worth. Following a luncheon, a program was presented on "Great Personalities in Medicine." Mrs. E. L. Howard reviewed the book "A Woman Surgeon," by Rosalie Slaughter Morton.

Virginia

The auxiliary to the Norfolk County Medical Society entertained the wives of the physicians who attended the Seaboard Medical Association in Virginia Beach, December 13-14. The auxiliary held its annual card party, January 24, at the Town Club in Norfolk to raise money to maintain a patient in the Tidewater Memorial Hospital and to assist the Diagnostic Tumor Control Clinic.

The auxiliary to the Petersburg Medical Society held its November meeting in the home of Mrs. Meade Edmunds in Petersburg. The auxiliary will contribute funds to the hospitals for the purchase of linens and other supplies.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ADDITIONAL MEDICAL COLLEGE NEWS AND ARTICLES APPEAR IN THE STUDENT SECTION, PAGE 1705.

ARKANSAS

Dr. Henry Resigns as Professor.—Dr. Charles R. Henry has resigned as full time professor of obstetrics and gynecology at the University of Arkansas School of Medicine, Little Rock, according to the state medical journal. He will continue on a part time basis with the department.

University News.—Dr. Duff S. Allen, assistant professor of clinical surgery, Washington University School of Medicine, St. Louis, delivered the third annual lecture of the University of Arkansas School of Medicine, Little Rock, sponsored by the local chapter of Phi Beta Pi medical fraternity, April 12, on "The Effect of Toxic Goiter on the Heart."

CALIFORNIA

University News.—The John and Mary R. Markle Foundation, New York, recently gave a grant of \$2,430 for research into the bacteriophage conducted by Dr. Albert P. Krueger, University of California Medical School, Berkeley.

Society News.—Dr. Rudolf Schindler, Chicago, will address a special meeting of the San Francisco County Medical Society, May 1, on "Gastroscopy—Early Diagnosis and Prognosis of Gastric Carcinoma."—Dr. Ralph K. Ghormley, Rochester, Minn., addressed the Los Angeles Surgical Society, April 12, on "Choice of Bone Graft Methods in Bone and Joint Surgery."

Public Lectures on Health.—The speakers' bureau of the Los Angeles County Medical Association is sponsoring a group of lectures on health at the Los Angeles Public Library. The following participated in the series April 4:

Dr. James C. Doyle, The Menopause.
Dr. George E. Judd, Gonorrhea in Women.
Dr. Frederick B. Zombro, Hematuria and Its Significance.
Dr. Arthur Elmer Belt, Glands and the Urinary Tract; Venereal Disease and Its Control.

Personal.—Dr. George Parrish was honored at a meeting of employees of the Los Angeles Department of Health in observance of his completion of fifteen years as city health officer.—Dr. Francis S. Smyth, professor of pediatrics, University of California Medical School, San Francisco, is spending his sabbatical leave of absence in Buenos Aires, where he is working with Prof. Bernardo A. Houssay, director of the Physiological Institute, University of Buenos Aires, on hypophysial diabetes.

COLORADO

Annual Spring Clinics.—The seventh annual spring clinics, presented by the Pueblo County Medical Society, will be held at Pueblo, May 9-10, with headquarters at the Congress Hotel. The staffs of Corwin, Colorado, St. Mary and Parkview hospitals are cooperating in presenting the clinics. The guest speakers include:

Dr. Davis Spangler, Dallas, Texas, X-Ray and Radium Therapy in Uterine Bleeding.
Dr. Sylvia Allen, Topeka, Kan., Psychiatry in Internal Medicine.
Dr. Henry N. Tihen, Wichita, Kan., Peptic Ulcer—Problems and Management.
Dr. Buford G. Hamilton, Kansas City, Mo., Fundamentals That Are to Be Observed During Labor and the Postpartum Period.

ILLINOIS

Society News.—Dr. Charles C. Dennie, Kansas City, Mo., discussed "The Management of Wassermann-Fast Cases" before the Peoria City Medical Society, April 2.—Dr. Otto H. Schwarz, St. Louis, discussed "Obstetric Hemorrhages" before the Christian County Medical Society at Taylorville, March 27, and Dr. Walter M. Whitaker, Quincy, "The Allergic Child."—Dr. William J. Engel, Cleveland, addressed the Sangamon County Medical Society in Springfield, March 7, on "Factors Responsible for the Lower Mortality in Prostatic Surgery."—Dr. Walter Schiller, Chicago, addressed the St. Clair County Medical Society in East St. Louis, March 7, on "Clinical Diagnosis of Ovarian Diseases."—Dr. Alphonse

McMahon, St. Louis, discussed "Aminophyllin: Its Uses and Effect upon the Electrocardiogram" before the Adams County Medical Society, March 11, in Quincy.—The Jersey-Greene County Medical Society was addressed in Carrollton, March 8, by Drs. Henry Buxbaum and H. William Elghammer, Chicago, on "Indications and Technic of Cephalic and Podalic Version" and "Rheumatic Heart Disease in Children" respectively.

Chicago

Postgraduate Courses on Obstetrics.—The University of Chicago and the Chicago Lying-In Hospital, in cooperation with the state department of health and the U. S. Children's Bureau, are offering postgraduate courses in obstetrics for physicians, extending from April 29 to June 8 and from June 17 to July 20. The only expense to the physicians will be for board and room, personal incidental expenses and a fee of \$15. Applications and inquiries should be addressed to Postgraduate Course, Department of Obstetrics and Gynecology, 5848 Drexel Avenue, Chicago.

Warning Against Impostor.—A man calling himself Dr. William H. Haid cashed a check at Northwestern University, March 29, drawn on the North Shore National Bank of Chicago. The check was returned marked "no account." Haid had said that he was at the university getting reprints on articles in connection with research work he was doing at the Petrolagar Laboratories, Niles Center. Investigation revealed that the laboratories did not employ any one by the name of Haid. Five days after cashing the check Haid called by telephone stating that he had drawn a check on the wrong bank and that he would be in and make it good in a day or so. Three days later he sent a card stating that he had been out of town but would come in the next day and take care of his obligation. The card was signed "Wm. H. Haid, M.D.," and was mailed from Maywood, Ill. He is described as 6 feet tall, aged between 30 and 32, with a round face, sharp pointed nose and a high forehead with hair thinning in front. He was dressed in a light suit, gray hat and green topcoat and presented a neat appearance. THE JOURNAL (Jan. 19, 1935, p. 237) carried a news item describing similar activities in Cleveland of an impostor using the same name. At that time newspapers reported that a William H. Haid, who is said once to have held a position with the Chicago department of health, had been arrested in Boston in 1931 on a charge of passing worthless checks and sentenced to serve a month in the house of correction. There is no Dr. William H. Haid listed in the last edition of the American Medical Directory.

INDIANA

Personal.—Dr. Oscar S. Heller, Greenfield, has been appointed health officer of Hancock County, succeeding the late Dr. James B. Ellingwood, Fortville. Dr. Heller formerly held the position.—Dr. Jerome V. Pace, who has been superintendent of the Indiana State Sanatorium, Rockville, since 1931, has been appointed head of the new southern Indiana tuberculosis hospital, Silver Crest, at New Albany. Dr. Robert A. Staff, superintendent of Smith-Esteb Memorial Hospital, Richmond, since 1936, has been appointed superintendent of the state tuberculosis sanatorium, succeeding Dr. Pace.

Memorial to Jane Todd Crawford.—A monument to Jane Todd Crawford will be dedicated, May 11, at her grave in Johnson Cemetery, Sullivan. The inscription reads:

Jane Todd Crawford, born in Rockbridge County, Virginia, December 23, 1763, married Thomas Crawford January 5, 1794, settled in Green County, Kentucky, November 5, 1805, suffering from an ovarian tumor and realizing that her only hope was a surgical operation, frankly experimental, this heroine, though in great pain, rode fifty miles horseback over rough trails to the home of Dr. Ephraim McDowell at Danville, Kentucky, where on December 25, 1809, antedating anesthesia, she submitted to the first ovariectomy and thus became the pioneer patient in abdominal surgery. Restored to health she lived for thirty-two years.

Erected by the Indiana Hospital Association, Section of the American Hospital Association, National Hospital Day, May 12, 1940.

KANSAS

The Porter Lectureship in Medicine.—Dr. Russell L. Haden, director of medicine, Cleveland Clinic, Cleveland, will deliver the tenth course of lectures under the Porter Lectureship in Medicine of the University of Kansas. The first and third lectures will be held in the medical school, Kansas City, and the second at Lawrence. The schedule is: April 30, "Hemolytic Anemia"; May 1, "The Red Blood Cell of Man," and, in the evening, "Polycythemia."

Society News.—The Central Kansas Medical Society was addressed in Hays, March 7, by Drs. Charles E. Walker Jr., Denver, on "Eye Conditions of Interest to the General Prac-

itioner"; Warren W. Tucker, Denver, "X-Ray Diagnosis of Placenta Praevia," and Daniel R. Higbee, Denver, "Tumors of the Kidney."—Dr. John A. Dillon, Larned, addressed the Ford County Medical Society in Dodge City, March 8, on "What the General Practitioner Should Know About Insanity."—The Shawnee County Medical Society was addressed in Topeka, March 4, by Drs. Clyde B. Trees, Topeka, on "Use of Carrel-Dakin Solution in the Treatment of Compound Fractures"; Leo A. Smith, Topeka, "Perianal and Perirectal Infections," and George F. Helwig, Topeka, "Blood Transfusions."—Dr. Millard F. Arbuckle, St. Louis, addressed the Sedgwick County Medical Society in Wichita, March 16, on "Value of Bronchoscopy in the Diagnosis and Treatment of Pulmonary Diseases."—Dr. Peter T. Bohan, Kansas City, Mo., addressed the Wyandotte County Medical Society, Kansas City, March 5, on "Clinical Approach to the Recognition of Functional Diseases."

LOUISIANA

Dr. Boyce Wins Gross Prize.—Dr. Frederick F. Boyce, assistant professor of surgery, Graduate School of Medicine of Louisiana State University, New Orleans, has been awarded the 1940 Samuel D. Gross Prize for his research entitled "The Role of the Liver in Surgery." The prize, which is \$1,500, is offered every five years by the Philadelphia Academy of Surgery for original research work in the field of surgery. By the terms of the award the material is later published as a monograph. Dr. Boyce graduated at Yale University School of Medicine, New Haven, Conn., in 1930. He was the first man in Louisiana to be certified by examination by the American Board of Surgery. He formerly was full time assistant professor of surgery at Louisiana State University School of Medicine.

MICHIGAN

Campaign Against Rabies.—Because the rabies situation in Michigan has grown rapidly worse in the past year, five state departments, including the governor's office, have started a united attack on rabies in Michigan. Dr. Arthur W. Newitt, director, bureau of epidemiology, state department of health, and C. H. Clark, state veterinarian and director of veterinary activities, state department of agriculture, have been named to direct the program. The situation was reviewed at a meeting, March 14, in the office of the state health commissioner, Dr. Henry Allen Moyer, attended by E. A. Beamer, commissioner of the department of agriculture; H. D. Ruhl, chief of the game division of the conservation department; Emerson R. Boyles, legal adviser to Governor Dickinson; Sergeant Lawrence Meehan, representing Oscar G. Olander, state police commissioner; Clifford C. Young, D.P.H., director of the laboratories of the state health department, Dr. Clark and Dr. Newitt. Dog quarantines have been established in six counties in the state. In 1939 more than 65,000 doses of vaccine were produced by the state health department laboratories, enough to treat more than 400 persons a month bitten by dogs known to be or suspected of being mad. More than 100 dog heads a month are now being examined for rabies, it was stated.

MINNESOTA

Wright Lecture on Urology.—Dr. Reed M. Nesbit, associate professor of surgery, University of Michigan Medical School, Ann Arbor, will deliver the Franklin R. Wright lecture at the annual meeting of the Twin City Urological Society, Minneapolis, May 7. His subject will be "Hypertension in Unilateral Renal Disease."

MISSOURI

The St. Louis Clinics.—The annual postgraduate course and clinical conference of the St. Louis Clinics will be held in the St. Louis Medical Society Building, St. Louis, May 13-16. A medicomilitary symposium will open the conference with the following speakers:

- Col. Carl H. Muller, St. Louis, Training of Reserve Officers and Mobilization.
- Lieut. Sam A. Bassett, St. Louis, Military Flight Physical Rejections; An Evaluation of Reconstruction Efforts.
- Lieut. Col. John P. Beeson, Omaha, Medical Problems of a Nation at War.
- Capt. George D. Newton, St. Louis, Tactical Employment of Chemical Troops in Attack; Medical Service of the Square Division; Medical Service of the Triangular Division.
- Comdr. Rutherford B. H. Gradwohl, St. Louis, New Facts on Blood Groups with Special Reference to Military Purposes.
- Rear Admiral Ross T. McIntire, Washington, D. C., surgeon general, U. S. Navy, Casualties at Sea.
- Lieut. Col. Egbert E. Brown, St. Louis, Contribution of the Medical Corps to the People of the United States.

- Lieut. Col. Charles L. Maxwell, Belleville, Ill., Neurocirculatory Asthenia in Aviation Medicine.
- Lieut. Col. Guy B. Denit, Fort Leavenworth, Kan., Medical Service of a Field Force.

The remainder of the program will be devoted to a wide range of medical subjects. One evening session will be addressed by Dr. George R. Herrmann, professor of clinical medicine, University of Texas School of Medicine, Galveston, on "Management of the Commoner Types of Cardiac Emergencies." A round table luncheon, Thursday, will be addressed by Dr. Willard M. Allen, assistant professor of obstetrics and gynecology, University of Rochester School of Medicine, Rochester, N. Y., on "Female Sex Hormones."

NEW MEXICO

Society News.—Dr. Nancy D. Campbell, Las Vegas, addressed the Las Vegas Medical Society recently on "Malignancies of the Female Pelvis." Dr. John J. Johnson Jr., Las Vegas, discussed sulfapyridine at a recent meeting. There was also a discussion of the medical plan of the Farm Security Administration at the latter meeting. Dr. Harrison Eilers, Las Vegas, spoke, March 13, on undulant fever.

NEW YORK

State Medical Meeting in New York.—The annual meeting of the Medical Society of the State of New York will be held at the Waldorf-Astoria, New York, May 6-9, under the presidency of Dr. Terry M. Townsend, New York. There will be general sessions, an Army and Navy program Tuesday afternoon, May 7, and a symposium Thursday afternoon, May 9, on "Early Recognition of Serious Lesions in Special Fields of Medicine." Speakers on the military program will be:

- Capt. Harry G. Armstrong, U. S. Army, Dayton, Ohio, General Medical Problems in Aviation.
- Capt. Lucius W. Johnson, U. S. Navy, Washington, D. C., Problems of Diving and Submarines.
- Lieut. Col. William D. Fleming, U. S. Army, Washington, D. C., Medical Problems in Aviation.
- Lieut. Albert R. Behnke Jr., U. S. Navy, Washington, D. C., Noise in Relation to Hearing and Efficiency.

Speakers in the symposium will be: Drs. Francis Heed Adler, Philadelphia, for ophthalmology; George M. Coates, Philadelphia, for otolaryngology; James Raglan Miller, Hartford, Conn., for gynecology, and Hugh H. Young, Baltimore, for urology (the A. Walter Suiter Lecture). In addition, there will be many guest speakers before section meetings, including the following:

- Dr. Frank H. Lahey, Boston, Ulcerative Colitis.
- Dr. Charles H. Best, Toronto, Ont., Heparin.
- Dr. Nicholson J. Eastman, Baltimore, Hazards Associated with Pregnancy and Labor in the Grande Multipara.
- Dr. Harrison S. Martland, Newark, N. J., Technic of the Medicolegal Autopsy.
- Dr. Joseph K. Calvin, Chicago, Tetanus—Its Prevention and Treatment.
- Dr. Frank G. Boudreau, New York, Epidemic Hazards in War.
- Dr. James T. Priestley, Rochester, Minn., Surgical Treatment of Carcinoma of the Bladder.
- Dr. Augustus McCravy, Philadelphia, Refrigeration Treatment of Tumors of the Genito-Urinary Tract.

Among other features of the program are a round table discussion of "Present Status of Therapy in Neoplastic Diseases—An Attack on Undifferentiated Cell Activity from the Physical Standpoint," led by Drs. Temple S. Fay and Lawrence W. Smith, Philadelphia, as well as symposiums on chronic diseases, fractures involving joints, carcinoma of the genito-urinary tract, urologic disease and hypertension and participation in the public health program. The Woman's Auxiliary will also hold its meeting at the Waldorf, May 6-9, with a hobby show as a special feature.

New York City

Biggs Memorial Lecture.—Dr. Paul Dudley White, Boston, delivered the fifteenth Hermann Michael Biggs Memorial Lecture of the New York Academy of Medicine, April 4. His subject was "Heart Disease—A World Problem."

The Adam Miller Memorial Lecture.—Dr. Thomas Addis, professor of medicine, Stanford University School of Medicine, San Francisco, will deliver the Adam M. Miller Memorial Lecture at the Long Island College of Medicine, Brooklyn, May 1, on "The Anatomical and Physiological Concepts Underlying the Treatment of Glomerular Nephritis."

Appointments at Columbia.—Dr. Ernest L. Stebbins, assistant commissioner for preventable diseases, New York State Department of Health, has been appointed professor of epidemiology at Columbia University College of Physicians and Surgeons, and John W. Fertig, Ph.D., associate in biostatistics, Johns Hopkins University School of

Hygiene and Public Health, Baltimore, has been made professor of biostatistics. Dr. Stebbins graduated at Rush Medical College in 1930. He served three years in the Virginia State Department of Health, joining the staff of the New York department of health in 1934 as an epidemiologist. In 1936 he became health officer of the Rochester district and in 1937 director of the division of communicable diseases. Dr. Fertig took the degree of doctor of philosophy in 1935 at the University of Minnesota. He was associate biometrician at the Memorial Foundation for Neuro-Endocrine Research, Worcester, Mass., for two years before going to Johns Hopkins in 1937.

NORTH DAKOTA

Personal.—Dr. Albert M. Fisher, Bismarck, has been appointed superintendent of the North Dakota State Hospital for the Insane, Jamestown, to succeed Dr. Frederick C. Lorenzen.

Society News.—Dr. Victor J. LaRose, Bismarck, was reelected president of the North Dakota Anti-Tuberculosis Association at its recent annual meeting.—Dr. Henning Milton Berg, Bismarck, addressed the Stutsman County Medical Society, Jamestown, recently on "Radiation Therapy of Cancer."

OHIO

Senator Taft to Address State Meeting.—Senator Robert A. Taft of Cincinnati, candidate for the Republican nomination for president, will be the guest speaker at the annual banquet of the Ohio State Medical Association, Thursday evening, May 16, at the Netherland-Plaza Hotel, Cincinnati. Senator Taft is a member of the U. S. Senate committee on education and labor, to which a number of important medical and health proposals have been referred. The address will be broadcast on a nationwide hookup of the Columbia Broadcasting System from 9:15 to 9:30 p. m., eastern standard time.

OREGON

Society News.—Dr. Karl H. Martzloff, Portland, addressed the Lane County Medical Society, Eugene, March 15, on "Fundamental Considerations in the Technic of Intestinal Anastomosis."—Dr. Joyle O. Dahl, Portland, addressed the Central Willamette Medical Society in Corvallis, March 7, on "Modern Diagnosis and Treatment of Syphilis."—Dr. Walter L. Kelsey addressed the Multnomah County Medical Society, Portland, March 20, on "Postoperative Pulmonary Complications."—Dr. Moses E. Steinberg, Portland, addressed the Columbia County Medical Society, Clatskanie, March 13, on gastroscopy.—Dr. Thomas R. Montgomery, Portland, discussed "Plans of Urethral Surgery and Surgery of the Prostate" at a meeting of the Polk-Yamhill-Marion Counties Medical Society, March 12.

Alumni Meeting.—The annual postgraduate session of the University of Oregon Medical School Alumni Association will be held in Portland, May 1-3, under the presidency of Dr. Thomas D. Robertson, Portland. Among the speakers will be:

- Dr. Joseph A. Beeman, Portland, Functions of the Crime Detection Laboratory.
- Dr. Frederick H. Falls, Chicago, Diagnosis and Management of Ectopic Pregnancy.
- Dr. Edwin G. Bannick, Seattle, Present Status of Sulfanilamide and Similar Compounds.
- Dr. Harry F. Dietrich, Los Angeles, High Temperatures in Infancy and Childhood.
- Dr. Ira A. Manville, Portland, Diabetes: Consideration of Protamine Insulin, Management of the Surgical Diabetic and Management of Diabetic Coma.
- Dr. Robert L. Benson, Portland, Allergy, with Special Attention to the Diagnosis and Treatment of Hay Fever and Asthma.
- Dr. William K. Livingston, Portland, Peripheral Vascular Disease, Diagnosis and Treatment.

Clinics and round table luncheons will also be included in the program. The session will end with the annual banquet.

PENNSYLVANIA

Annual Tuberculosis Meeting.—The Pennsylvania Tuberculosis Society will hold its forty-eighth annual meeting in Williamsport, May 9-10. Among the speakers will be Dr. William A. Sawyer, Rochester, N. Y., on "Industry's Opportunity and Responsibility in the Task of Eradicating Tuberculosis"; Col. Arthur Parker Hitchens, Philadelphia, "The Role of the Health Officer in the Tuberculosis Program"; Dr. John S. Packard, Allenwood, "Diagnosis and Treatment of Tuberculous Tracheobronchitis," and Dr. Esmond R. Long, Philadelphia, "Tuberculin Test and Roentgen Ray in Tuberculosis Case Finding."

Philadelphia

Strittmatter Award to State Health Officer.—Dr. John J. Shaw, state secretary of health, Harrisburg, received the Strittmatter Award of the Philadelphia County Medical Society at a meeting April 10. Dr. Jacob Parsons Schaeffer, chairman of the award committee, presented the gold medal to Dr. Shaw with a scroll complimenting his service as health officer "in effectively organizing and, through conference with recognized individuals and groups, coordinating the many and varied health agencies and activities of the state." Dr. Shaw, a resident of Philadelphia, was appointed by Governor James in January 1939. The annual John Chalmers Da Costa Oration was delivered at this meeting by Dr. Charles Gordon Heyd, New York, on "The Evolution of Modern Surgery."

SOUTH CAROLINA

State Medical Meeting at Charleston.—The ninety-second annual meeting of the South Carolina Medical Association will be held at the Francis Marion Hotel in Charleston, April 30-May 2, under the presidency of Dr. Douglas Jennings, Bennettsville. The guest speakers will be Drs. Louis A. Buie, Rochester, Minn., on "Management of Common Anorectal Conditions," and Oscar W. Betha, New Orleans, on "Heart Pain." South Carolina speakers will include:

- Drs. Gertrude R. Holmes and Hugh P. Smith, Greenville, Chronic Conditions of the Gallbladder.
- Dr. Alfred F. Burnside, Columbia, Regional Iliitis.
- Dr. James T. Quattlebaum, Columbia, Intravenous Therapy in the Treatment of Acute Heart Failure.
- Dr. James A. Sasser, Conway, Conservative Management of Pelvic Infections.
- Dr. Gerald E. McDaniel, Columbia, Poliomyelitis.
- Dr. Roger G. Doughty, Columbia, Diagnosis and Management of Carcinoma of the Colon.
- Dr. Joseph Decherd Guess, Greenville, Some Observations on the Conduct of Labor.
- Drs. Robert Stith Jr. and Walter R. Mead, Florence, The Male Climacteric.
- Dr. Everett B. Poole, Greenville, Chronic Tetany.
- Dr. George T. McCutchen, Columbia, Observations of Plastic Surgical Procedures.

The chief feature of the meeting will be the formal dedication of a new building for the Medical College of the State of South Carolina, Wednesday afternoon, May 1. Gov. Burnett R. Maybank will deliver an address and the American Legion will present its distinguished service plaque to Dr. Robert Wilson, dean of the college.

VIRGINIA

Portrait of Dr. James Tate Mason.—A portrait of the late Dr. James Tate Mason, Seattle, was presented to the University of Virginia Department of Medicine, Charlottesville, April 13, by members of his class at the university and other friends. Dr. Mason, who died in 1936 a few weeks after he was installed in absentia as President of the American Medical Association, graduated from the University of Virginia Department of Medicine in 1905.

WASHINGTON

Annual Summer Course at University of Washington.—Announcement is made of the twenty-fourth annual graduate medical course at the University of Washington, Seattle, to be held July 15-19. The guests will be Drs. Soma Weiss, Boston, on medical topics; Charles F. McKhann, Boston, pediatrics; Richard B. Cattell, Boston, surgery, and Chauncey D. Leake, Ph.D., San Francisco, pharmacology.

Society News.—Dr. Carl P. Wagoner, Seattle, addressed the Pierce County Medical Society, Tacoma, recently on the common cold.—At a meeting of the King County Medical Society, Seattle, March 18, the speakers were Drs. Clark C. Goss on "Chronic Undulant Fever"; Alexander R. Altose, "Treatment of Certain Allergic Conditions with Histaminase," and Walter L. Voegtlin, "Treatment of Alcoholism by Establishing a Conditioned Reflex."—Drs. Homer P. Rush and Edgar Merle Taylor, Portland, Ore., addressed the Walla Walla Valley Medical Society, Walla Walla, March 14, on high blood pressure. Dr. Edward W. St. Pierre, Portland, Ore., addressed the society, April 11, on "Carcinoma of the Stomach and Colon."

WISCONSIN

State Journal Honors Dr. Woodward.—The *Wisconsin Medical Journal* dedicated its April issue to Dr. William C. Woodward, director of the Bureau of Legal Medicine and Legislation of the American Medical Association for eighteen years before his retirement January 1. The journal reviewed Dr. Woodward's career in medicine and law and paid tribute

to his contributions to public health. A part of the editorial reads: "Dr. Woodward is learned not alone in the science of medicine, in the realm of law and the translation of the advances of science into the protection of the people by law. His is the richer and deeper learning of how to work with men. And because all of this lies in a man of directness, simplicity and public purpose, his contributions to the cause of public health are not to be measured in this generation."

Cancer Laboratory Opened at Madison.—The Michael W. McArdle Memorial Laboratory for Cancer Research was opened February 26 at the University of Wisconsin, Madison. The therapy department includes two high voltage therapy rooms, one with a 400,000 volt unit and the other with a 200,000 volt unit. There are also a superficial therapy room, a radium room, a waiting room and offices on the first floor. The basement has storage rooms and a radon plant. The new laboratory was built with funds from a federal PWA grant and from a gift of stocks and property bequeathed by the late Mr. McArdle of Chicago. The center broadens the university's cancer work, which began five years ago with the Bowman fund, established to provide fellowships for research. The building committee included Walter J. Meek, Ph.D., professor of physiology and assistant dean of the medical school; Dr. William D. Stovall, acting superintendent of the Wisconsin General Hospital, and Dr. Ernest A. Pohle, professor of radiology.

GENERAL

Brinkley's Appeal for Rehearing Denied.—On April 19 the United States Circuit Court of Appeals for the fifth circuit at New Orleans denied the petition of J. R. Brinkley for a rehearing in the case of *J. R. Brinkley v. Morris Fishbein*. No opinion was rendered in connection with the denial.

Midwest Safety Conference.—The eighteenth annual Midwest Safety Conference will be held at the Sherman Hotel, Chicago, April 30-May 2, under the auspices of the Greater Chicago Safety Council, the Illinois Industrial Commission and other agencies. There will be sessions on fundamental causes of accidents in industry, public safety education, first aid in industry and other phases of safety work. A session on industrial hygiene will be sponsored jointly with the Chicago section of the American Industrial Hygiene Association.

Vitamin Hearings for April 29 Revoked.—It was announced in THE JOURNAL, April 20, page 1559, and in other publications that there would be a hearing on proposed regulations for special dietary foods and vitamin preparations. These hearings have been revoked, as have also the hearings set for May 13 on standards of identity for flour. Officials explained that the U. S. Department of Agriculture could not complete regulations based on these hearings before the scheduled date of the proposed transfer of the Food and Drug Administration to the Federal Security Agency under the President's Reorganization Plan No. 4.

American College of Physicians.—Dr. Roger I. Lee, Boston, a Trustee of the American Medical Association, was named president-elect of the American College of Physicians at the annual session in Cleveland, April 1-5, and Dr. James D. Bruce, Ann Arbor, Mich., was installed as president. Vice presidents elected were Drs. Robert A. Cooke, New York; James G. Carr, Chicago, and Henry M. Thomas Jr., Baltimore. Drs. William Gerry Morgan, Washington, D. C., and James B. Herrick, Chicago, received the title of "master" of the college, the first time this honor had been conferred in eleven years. Only six physicians have previously been so honored.

American Orthopaedic Association.—The annual meeting of the American Orthopaedic Association will be held in Kansas City, Mo., May 6-9. The second day will be devoted to a symposium on "The Incidence, Significance and Treatment of Sciatic Pain in Low Back Cases" with the following speakers, among others: Drs. Theodore A. Willis and Clarence H. Heyman, Cleveland; Winchell McK. Craig and Henry W. Meyering, Rochester, Minn.; John G. Kuhns, Joseph S. Barr, William Jason Mixer and Marius N. Smith-Petersen, all of Boston; Benjamin P. Farrell, New York; Albert H. Freiberg, Cincinnati, and Carl E. Badgley, Ann Arbor, Mich. Among other papers will be:

Dr. Alfred R. Shands Jr., Wilmington, Del., A Survey of Orthopedic Research in the United States and Canada.
Dr. Philip D. Wilson, New York, Two-Stage Transplantation of the Tibia.
Fibula for Complicated Pseudarthrosis of the Tibia.
Dr. Wallace H. Cole, St. Paul, Claw-Foot.
Dr. Willis C. Campbell, Memphis, Tenn., Sulfanilamide in the Treatment of Compound Fractures.

American Surgical Association.—The annual meeting of the American Surgical Association will be held in St. Louis, May 1-3, at Washington University under the presidency of Dr. Allen O. Whipple, New York. The first day will be devoted to a symposium of eleven papers on "Fluid and Electrolyte Needs of the Surgical Patient" presented by Drs. John P. Peters, New Haven, Conn.; David C. Bull and Charles R. Drew, New York; John Scudder, New York; Walter G. Maddock, Ann Arbor, Mich.; Grover C. Penberthy and Robert Mayo Tenery with J. Logan Irvin, Ph.D., Detroit; Jacob Fine, Boston; Isidor S. Ravdin and William Osler Abbott, Philadelphia; Robert Elman, St. Louis, and Carl W. Walter, Boston, and Ann S. Minot, Ph.D., Nashville, Tenn. Among other papers will be:

Dr. Jonathan E. Rhoads, Philadelphia, Physiologic Factors Regulating the Level of the Plasma Prothrombin.
Dr. Henry K. Ransom, Ann Arbor, Mich., Abdominal Neoplasms of Neurogenic Origin.
Drs. Edwin P. Lehman and Floyd E. Boys, Charlottesville, Va., Heparin in the Prevention of Peritoneal Adhesions: Report of Progress.
Dr. Daniel C. Elkin, Atlanta, Ga., Aneurysm of the Abdominal Aorta: Successful Treatment by Ligation.
Drs. John Albert Key and Charles J. Frankel, St. Louis, Relative Local Efficiency of Sulfanilamide, Sulfapyridine and Sulfathiazole in Contaminated Wounds.
Drs. Frank W. Hartman and Roy D. McClure, Detroit, Further Anesthesia Studies with Photoelectric Oxygen Analysis.
Dr. Reginald H. Smithwick, Boston, Complete and Lasting Sympathetic Denervation of the Sympathetic Ganglionic Section.

The Accident Record for 1939.—The National Safety Council in its preliminary report of accidental deaths in 1939 announced a total of 93,000, which was 1 per cent below the total for 1938. Motor vehicle accident fatalities were practically the same as in 1938, approximately 32,600. Deaths due to occupational and public (not motor vehicle) accidents decreased; occupational from 16,500 to 16,000 and public not involving a motor vehicle from 16,000 to 15,000. Home accident deaths increased from 31,500 to 32,000. The death rate of 71 per hundred thousand of population was the lowest since 1900, with the exception of 1921 and 1922, the report said.

Although traffic deaths as a whole did not decline, the mileage death rate decreased for the fifth consecutive year. In 1939 motor vehicle travel increased 6 per cent and the number of motor vehicles in use increased 4 per cent. In addition to the 32,600 deaths, traffic accidents caused about 1,150,000 nonfatal injuries, of which 90,000 caused permanent disabilities.

City traffic figures showed an average reduction of 3 per cent, but the report points out that less than a third of the death toll occurs in cities of more than 10,000 population. The number of deaths in rural areas and cities under 10,000 was more than 23,000. In the past ten years the urban deaths have declined 24 per cent while those in rural areas and small cities have increased 23 per cent.

Analysis of traffic deaths in groups of cities showed that Milwaukee led cities of more than 500,000 with a death rate of 9.3. In the group with populations between 250,000 and 500,000 Providence, R. I., held top rank with a rate of 5.5. Worcester, Mass., led the group of cities between 100,000 and 250,000 with 5.1 and four other Massachusetts cities were next in order in the group, Cambridge, New Bedford, Fall River and Springfield. In the fourth group Hoboken, N. J., was first with 1.7 deaths per hundred thousand. Forty-six cities with populations between 10,000 and 50,000 completed the year without a traffic fatality. About 12,200 pedestrians were injured in 1939, 3 per cent below the 1938 figure.

Of the 32,000 home accidents, 17,000 were caused by falls. Burns and fires killed approximately 5,700, or 400 more than in 1938.

The public (not motor vehicle) accident total of 15,000 for 1939 was the lowest for any year since estimates were first made in 1928 and was 6 per cent under the 1938 record. At least half the decrease was in drownings, which dropped from 4,700 in 1938 to about 4,200 in 1939. There were 1,750,000 nonfatal injuries in this classification.

Steam railroad accidents in the first ten months of 1939 resulted in 3,664 deaths and 22,884 nonfatal injuries, a 2 per cent decrease in deaths and a 3 per cent increase in injuries. Deaths of passengers on trains amounted to twenty-three, compared to sixty-five in 1938, when the Montana train wreck occurred. Deaths of employees on duty went up 3 per cent from 399 to 412. Trespasser deaths increased from 2,014 to 2,021.

Aviation made the best record in its history. The passenger death rate per hundred million passenger-miles was 1.2, as compared with 4.5 in 1938 and with 28.6 in 1930.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 23, 1940.

Professor Hill Sent to Washington

Prof. Archibald Vivian Hill, F.R.S., who has recently become a member of parliament, has been appointed assistant air attaché in Washington for special scientific liaison. Professor Hill is a leading physiologist whose specialty is biophysics. Among many distinctions, he has obtained the Nobel prize for medicine, though he has never qualified as a physician. He has been director of the anti-aircraft section of the Munitions Inventions Department. He is well known in America, where he delivered the Herter lectures at Baltimore and the Lowell lectures at Boston.

The Conscription of Physicians

Before the outbreak of war the majority of physicians of military age voluntarily enrolled for war service in response to the request of the government. Subsequently conscription was adopted of all men of 21 years and then of older men by successive years of age. The application of conscription was not universal, as men in certain occupations held to be of national importance were exempted. Among the exempted occupations is the medical profession. The Central Emergency Committee of the British Medical Association has now unanimously recommended that physicians be removed from the list of reserved occupations. If this proposal is accepted, physicians who have not yet reached the age of 28 years will become liable for compulsory service with the fighting forces in a medical capacity. Those at older ages would automatically become liable as the proclamation age is raised. The committee does not desire that compulsion should be applied within six months of qualification. Under existing arrangements those who obtain resident posts at hospitals within the six months period will be permitted to complete their appointment if it is not more than six months. Many of the older physicians, with heavy obligations, have joined up and therefore the committee feels that it would be fairer if medicine was withdrawn from the reserved occupations.

Arrangements for Treatment of Air Raid Casualties

Air raid casualties on a large scale have not occurred, probably because the enemy realizes the consequences to him if he bombs our cities. But our vast organization of precautions is maintained. The Emergency Medical Service is an example. Initial treatment for minor injuries will be provided, as far as possible, at first aid posts. Any further treatment, as well as treatment required by casualties after discharge from hospitals, will be provided at their outpatient departments. Some subsequent treatment which cannot be provided at the hospital may be necessary, and the cost of domiciliary treatment of any injury in an air raid will be paid by the government according to arrangements now made. These apply to injuries sustained by civilians as the result of enemy action, at sea as well as in England, and also to injuries sustained by civil defense volunteers in the course of their duty, whether caused by enemy action or not. It has been agreed between the Ministry of Health and the British Medical Association that a capitation fee of \$3 shall be paid to physicians by the government for each civilian who receives domiciliary treatment for any of the injuries described. The cost of any drugs or dressings needed for domiciliary treatment will also be paid by the government. Should complications occur which necessitate further inpatient treatment or special treatment outside the physician's purview, he must refer the patient back to the hospital.

The Chemotherapy of War Wounds

A medical society has been formed by the medical officers of the British Expeditionary Force in France. The opening paper, on the chemotherapy of war wounds, was given by Col. Leonard Colebrook, bacteriologist, who pointed out that the most striking lesson of the great war was the predominant part played by hemolytic streptococci in wound infections. Probably this one microbe was responsible for 70 per cent of all the deaths due to infections of wounds. It also gave rise to most of the complications, such as erysipelas, cellulitis and septicemia. Of forty-nine positive blood cultures obtained from men with septic compound fractures of the femur, forty-four showed pure cultures of hemolytic streptococci. Unfortunately it was not learned whether in most cases the organisms were carried into the tissues at the time of wounding or whether they were transmitted from case to case in the hospitals or disseminated by dust or by carriers in the respiratory tract. Stokes and Tyler found that about 15 per cent of wounds were already infected by hemolytic streptococci on admission to the casualty clearing station (average twelve hours after the wounds were inflicted), while a much larger proportion were found infected on examination after a few days at the base. A figure as high as 90 per cent was given for one hospital. These figures suggested that hospital infection played a sinister part.

It is necessary to learn how to control these infections. Experiments on mice had shown that injections of sulfapyridine or sulfanilamide before the mice were infected protected them. It seemed clear that if a certain amount of sulfanilamide was present in the circulating blood at the time streptococci reached the tissues, they were prevented from causing an acute infection. If the microbes were implanted when the man was hit, prophylactic treatment must be started at the earliest possible moment. But in planning preventive measures we were up against the difficulty that infection was not always caused at the time the man was wounded but might occur in the hospital during the next few days. A single prophylactic dose given by mouth shortly after the injury would be almost all excreted within ten to twenty hours. Therefore in order to maintain the necessary concentration in the blood during the whole period of danger, administration must be continued for at least four days. By the end of that time the injured tissues would presumably be walled off by the process of repair, and if infection occurred it would be much less serious.

The dosage for successful prophylaxis in man could not yet be stated dogmatically. However, Fuller and James had recently produced data which suggested a plan of dosage designed for rapid absorption during the first few hours and slow continuous absorption afterward: First dose, 1.5 Gm. of sulfanilamide (three tablets) dissolved in 100 cc. of 1 per cent hot citric acid solution or hot lemon. Second dose, two hours later, 0.5 Gm. (one tablet whole or partly crushed in order to delay absorption). Subsequent doses, 0.5 Gm., whole or partly crushed, at four hourly intervals for four days. Total dose, 13.5 Gm. in four days. The blood concentrations from these doses in men suffering from shock would have to be checked to ensure that they corresponded with those obtained by Fuller and James in normal men. Toxic effects should be noted. If the drug was well borne but did not prevent infection, larger doses should be tried.

For infections already established, the dosage did not much differ from that used in civil practice. There was some evidence that sulfapyridine was more effective than sulfanilamide in gas gangrene. To expedite its absorption the first three doses (1 Gm. each) should be given well crushed and dissolved as far as possible at an interval of from one to three hours. During the first twenty-four hours from 6 to 8 Gm. should be given and the dose slightly reduced next day if the clinical condition was much improved. For hemolytic streptococcus infection 1 Gm. of sulfanilamide should be given every four

hours for the first day or two and reduced with clinical improvement. For severe infections 8 Gm. should be given on the first day. The drug should be continued for four or five days after the temperature had dropped to normal and the clinical condition had become satisfactory, but it should not be continued after that time just because there were still streptococci in the discharges. Because of the danger of granulocytopenia from these drugs, a leukocyte count should be made on the seventh day of treatment in every case in which large doses were administered.

BUENOS AIRES

(From Our Regular Correspondent)

March 15, 1940.

An Argentine Hospital in France

As reported by the chairman of the Comisión Argentina pro Francia the hospital maintained in Paris with Argentine money has begun to function. It bears the name of Dr. Pedro Chutro, who rendered great service to the allied cause in the World War. The hospital is specially equipped for oxygen therapy and has already taken care of 165 patients. Two hundred Argentine pesos (\$60) will defray the monthly expense of a bed.

Maternity and Child Welfare Centers

The national department of health, through its division on maternity and child welfare (dirección de maternidad y infancia), recently intensified its activities in the interior of the country. In all provinces and territories welfare centers have been established. These centers are not limited to giving direct medical aid but are engaged also in prophylaxis and social hygiene such as education for health, control of endemic diseases, and problems of nutrition. They even serve free meals. The centers are equipped to take care of varying local needs. Those with the simplest equipment have consultation bureaus for antepartum and postpartum care and for child welfare and prepare milk and other foods for infants. Fully developed centers contain wards for pregnant women and young mothers, a training school for mothers, a dental office, a milk laboratory and a kindergarten. During the past year 115,000 children were examined, 37,000 for the first time. Of these, 740 were hospitalized. More than 30,000 women were aided. In addition, obstetric and dental aid was given on many occasions, as well as other services furnished such as prophylactic vaccinations, clinical analyses, minor operations and ultraviolet treatments. More than 330,000 liters (348,480 quarts) of fresh milk, about 2,500 liters (2,640 quarts) of prepared milk, more than 800 Kg. of powdered milk, 150 Kg. of condensed milk and considerable quantities of flour, lactose and over 1,000,000 meals were dispensed to mothers and children. These centers also engaged in house visitations, in encouraging wedded cohabitation, in legitimatizing children, in finding jobs for unemployed heads of families, in placing children in private homes and in distribution of clothes. In the schools for mothers more than 500 lectures on health education were given. Additional centers are in preparation. Three traveling adjuncts to the center have been established, which give instruction in prophylaxis and hygiene and gather scientific data. They serve the three zones into which the country has been divided.

Sanitary Stations

In the Argentine province of Santa Fe, sixty sanitary stations have been constructed in rural districts. They not only furnish medical aid but are equipped with some beds. They also engage in the promotion of personal hygiene and furnish baths free of charge. Each station is to serve a community within a radius of 25 kilometers and is to function in cooperation with the nearest regional hospitals. The construction of each of these rural hospitals will cost about 34,300 Argentine pesos (\$10,000).

Survey of Abnormal Children

The division of maternity and child aid conducted investigations during the middle of last year throughout Argentina to determine the number of children of school age that show signs of psychic abnormality, speech disorders and the like. A special bureau was established within the center that takes care of mothers and children and a system of classifying abnormalities worked out. The cases are divided into two classes: serious psychic abnormalities, such as idiocy and imbecility, and lighter kinds, such as speech and psychosensory disturbances. Most of the cases (92 per cent) found belong to the second class, in which improvement and cures can be expected. Means and measures for actual aid are yet to be elaborated.

BUDAPEST

(From Our Regular Correspondent)

March 8, 1940.

Fitness for Air Raid Precaution Work

Drs. Rác Lajos and Telbisz Albert, regimental surgeons, studied the question Who are fit for air raid precaution work? They call attention to the difficulties of such service and delineate the lines on which suitable men can be selected. They observed that those who performed the work of air raid precaution easily and well, without gas mask and gas protecting suit, could perform the same work attired in gas protecting instruments either for a shorter period or by expressed overstraining of their organism. In such instances they felt palpitation, piercing pain over the heart, accelerated pulse, increase in the number of respirations, rise of the blood pressure and copious sweating, and in their head they felt a blunt pressure pulsation.

The work can be classified according to severity as: 1. Difficult work—making localities gas proof, searching for gas leaks, extinguishing fires and other work which has to be done in protective suits and oxygen inhalators. 2. Moderate work which has to be performed in gas masks. 3. Light work. When recruits are selected, men over 50 years of age should not be given work which has to be done in gas protecting suits. Inquiry should be made whether the applicant is accustomed to heavy work. Seemingly healthy subjects with a history of repeated tonsillitis, polyarthritis, syphilis or diphtheritis should be examined with special care. Persons who are unfit for this service include those suffering from exophthalmic goiter, hyperthyroidism, diabetes, Bright's disease with cardio-renal decompensation, and anemia, emphysema, or other pulmonary disease.

Marriages

WILLIAM HENRY FALOR, Akron, Ohio, to Miss Ann Elizabeth Van Blaricom of Salem, at Leesburg, Va., March 9.

HORACE E. TITSWORTH, Bandana, Ky., to Miss Dorothy Goodhue of Chattanooga, Tenn., March 1.

GUIDO A. DE BLASIO, Mount Vernon, N. Y., to Miss Amy Breyer of Nashville, Tenn., March 16.

GERTRUDE EMILY OLSEN, Pontiac, Mich., to Mr. Webster Saxman of Portland, Ind., March 26.

SIMMONS S. SMITH to Miss Ruth Janis Whipple, both of Lakewood, Ohio, Nov. 5, 1939.

WILLIAM DEVEREAUX JARRATT JR. to Miss Mary R. Volk, both of Macon, Ga., in March.

WILLIAM L. PERRY, Chesterfield, S. C., to Miss Ruth Kirven of Darlington, March 23.

JACK W. MILES to Miss Ruth B. Lewis, both of Columbus, Ohio, February 28.

DWIGHT I. ROUSH, Rutland, Ohio, to Miss Flora Hanes of Dayton, March 24.

LOREN L. FRICK, North Canton, Ohio, to Miss Helen Parsons at Kent in March.

Deaths

Sven Richard Lokrantz ☉ Los Angeles; Tufts College Medical School, Boston, 1918; past president of the Southern California Public Health Association and the American Association of School Physicians; director of health service, city schools; in 1932 was appointed medical director of the Olympic games by planning and carrying out a program of medical care, health supervision and first aid for the Olympic athletes; received honors from his own and foreign countries and knighthood from his native land of Sweden; on the staffs of the California Hospital, Babies' and Children's hospitals; consultant to the Orthopedic Hospital; aged 47; died, March 11, of a self-inflicted bullet wound.

David Nathaniel Roberg, San Jose, California; Rush Medical College, Chicago, 1908; member of the California Medical Association and the Pacific Coast Oto-Ophthalmological Society; professor of anatomy at the University of Oregon Medical School, Portland, 1910-1911, and professor of pathology from 1911 to 1913; commissioner of health of Oregon from 1915 to 1917 and 1919-1920; served during the World War; on the staff of the Santa Clara County Hospital; aged 55; died, February 20, of injuries received in an automobile accident.

Harry E. Marselus ☉ Dixon, Ill.; American College of Medicine and Surgery, Chicago, 1904; member of the American Psychiatric Association; on the staff of the Dixon State Hospital; formerly on the staffs of the Peoria (Ill.) State Hospital, Lincoln (Ill.) State Hospital and the East Moline (Ill.) State Hospital; aged 59; died, February 25, in Sheboygan, Wis., of coronary embolism and hypertension.

Herman Frank Vickery ☉ Brookline, Mass.; Harvard Medical School, Boston, 1882; assistant in clinical medicine from 1884 to 1890, instructor in clinical medicine from 1890 to 1913 and instructor in medicine 1913-1914 at his alma mater; formerly on the staff of the Massachusetts General Hospital; member of the Association of American Physicians; aged 83; died, February 22, of bronchopneumonia.

Carleton Graves Crisler ☉ Cincinnati; University and Bellevue Hospital Medical College, New York, 1903; assistant professor of clinical surgery at the University of Cincinnati College of Medicine; fellow of the American College of Surgeons; aged 59; on the staffs of the Children's Hospital and the Christ Hospital, where he died, March 9, of cerebral hemorrhage.

Henry Clark Buswell ☉ Buffalo; Niagara University Medical Department, Buffalo, 1888; formerly associate professor of medicine at the University of Buffalo School of Medicine; consulting physician to the Millard Fillmore Hospital, Deaconess Hospital and St. Mary's Hospital; aged 78; died, March 4, in the Strong Memorial Hospital, Rochester, N. Y., of pneumonia.

Earle Charlton Reynolds ☉ Passaic, N. J.; Cornell University Medical College, New York, 1910; fellow of the American College of Surgeons; served during the World War; aged 53; on the staffs of St. Joseph's Hospital, Paterson, and the Passaic General Hospital, where he died, February 19, of coronary occlusion.

Elmer Walter Powers, Westfield, N. Y.; University of Vermont College of Medicine, Burlington, 1899; member of the Medical Society of the State of New York; past president of the Chautauqua County Medical Society; served as school physician and health officer for many years; aged 69; died in February.

Frank Edwin Ayers, Celina, Ohio; Starling Medical College, Columbus, 1897; member of the Ohio State Medical Association; secretary of the Mercer County Medical Society; for many years county health officer; served during the World War; aged 63; died, February 23, of coronary thrombosis.

Daniel M. Kelly, Baraboo, Wis.; Rush Medical College, Chicago, 1892; member of the State Medical Society of Wisconsin; at one time mayor; for many years county physician; on the staff of St. Mary's Ringling Hospital; aged 75; died, February 27, of cerebral arteriosclerosis.

William Evelyn Hopkins, Los Angeles; University of Virginia Department of Medicine, Charlottesville, 1879; University of the City of New York Medical Department, 1880; member of the American Academy of Ophthalmology and Otolaryngology; aged 81; died, February 5.

William Monroe White ☉ Lieutenant Colonel, M. C., U. S. Army, Brackettville, Texas; Atlanta College of Physicians and Surgeons, 1903; served during the World War; entered the medical corps of the regular army in 1920; aged 61; died, January 10, of acute myocarditis.

Fred Hartzell Martz ☉ Johnstown, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1920; on the staff of the Lee Homeopathic Hospital; aged 43; died, February 22, in the Shadyside Hospital, Pittsburgh, of cerebral embolus and sarcoma of the right antrum.

John Alexander McKay, Shelton, Wash.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; Manitoba Medical College, Winnipeg, Man., Canada, 1914; aged 70; died, February 19, of cerebral hemorrhage.

John William Keeler Jr. ☉ Hammondsport, N. Y.; University of Maryland School of Medicine, Baltimore, 1906; for many years health officer of the village of Hammondsport and the town of Urbana; aged 60; died, February 8, of coronary thrombosis.

William Eugene Mowery ☉ Salina, Kan.; University Medical College of Kansas City, Mo., 1909; president of the Mowery Clinic; on the staffs of the Asbury Hospital and St. John's Hospital; aged 55; died, March 6, in Orlando, Fla., of coronary disease.

Eugene Edward Bauer, Owego, N. Y.; University of Buffalo School of Medicine, 1897; member of the Medical Society of the State of New York; for many years health officer; aged 69; died, February 25, of coronary occlusion and arteriosclerosis.

James Hoyt Huckins, Long Beach, Calif.; Drake University College of Medicine, Des Moines, Iowa, 1909; on the staffs of the Seaside Hospital, St. Mary's Hospital and the Community Hospital; aged 51; died, February 16, of heart disease.

William Joseph Scruggs, Camden, N. J.; Jefferson Medical College of Philadelphia, 1925; member of the Medical Society of New Jersey; aged 41; died, February 19, in the Cooper Hospital, Camden, of essential hypertension.

William Wallace Allred, Collins, Miss.; Memphis (Tenn.) Hospital Medical College, 1911; served during the World War; aged 58; died, March 4, in a hospital at Hattiesburg of coronary occlusion, periostitis and cirrhosis of the liver.

George Elmore Campbell ☉ Pasadena, Calif.; University of Minnesota Medical School, Minneapolis, 1895; on the staffs of the Huntington Memorial Hospital and St. Luke's Hospital; aged 72; died, February 14, of coronary thrombosis.

Daniel Austin Lebo, Philadelphia; Medico-Chirurgical College of Philadelphia, 1907; member of the Medical Society of the State of Pennsylvania; aged 57; on the staff of the Episcopal Hospital, where he died, February 16, of meningitis.

Vincent Gino, Chicago; Regia Università degli Studi di Palermo Facoltà di Medicina e Chirurgia, Italy, 1902; served during the World War; on the staff of the University Hospital; aged 63; died, March 4, of coronary thrombosis.

Barton Huxley Wherritt, Salt Lake City; University of Pennsylvania School of Medicine, Philadelphia, 1930; member of the Utah State Medical Association; aged 33; died, February 5, of injuries received in an automobile accident.

Augustus Thompson Marshall ☉ Randolph, Vt.; Dartmouth Medical School, Hanover, N. H., 1901; on the staff of the Gifford Memorial Hospital; aged 63; died, February 19, in a hospital at Boston of cerebral hemorrhage.

Charles Lytle Shultz, Brookline, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1910; member of the Medical Society of the State of Pennsylvania; aged 68; died, February 17, of chronic myocarditis.

William D. Danner, Spring Grove, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1906; member of the Medical Society of the State of Pennsylvania; aged 57; died, February 24, of coronary embolism.

Charles Gilbert Percival, Cold Spring, N. Y.; College of Physicians and Surgeons, Boston, 1902; served during the World War; aged 67; died, February 29, of acute dilatation of the heart and chronic myocarditis.

Arthur Chalmers Wilkes, Newark, N. J.; New York Homeopathic Medical College and Hospital, New York, 1903; member of the Medical Society of New Jersey; aged 59; died, February 2, of carcinomatosis.

Oliver B. Jones Jr., Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1886; aged 75; died, February 19, in the Chestnut Hill Hospital of bronchopneumonia and myocarditis.

Joseph H. Hall, Plattsmouth, Neb.; Rush Medical College, Chicago, 1878; Bellevue Hospital Medical College, New York, 1882; formerly county physician; aged 86; died, February 28, of carcinoma of the stomach.

George R. De Laoreal, Broussard, La.; Pulte Medical College, Cincinnati, 1891; member of the Louisiana State Medical Society; aged 70; died, March 4, of cerebral hemorrhage and coronary thrombosis.

George Clarence Swope, Mildred, Pa.; Southern Homeopathic Medical College, Baltimore, 1901; member of the Medical Society of the State of Pennsylvania; aged 64; died, February 1, of cerebral hemorrhage.

George W. Lott, Westboro, Mo.; State University of Iowa College of Medicine, Iowa City, 1889; member of the Missouri State Medical Association; aged 81; died, February 10, of coronary thrombosis.

David Porter Richardson, Henderson, Texas; Bellevue Hospital Medical College, New York, 1886; member of the State Medical Association of Texas; aged 89; died, February 19, of coronary thrombosis.

Russell Cleveland Lichtenfels, Pitcairn, Pa.; University of Pittsburgh School of Medicine, 1912; served during the World War; aged 50; died, March 9, in Miami, Fla., of coronary thrombosis.

David Taggart, Frackville, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1879; member of the Medical Society of the State of Pennsylvania; aged 83; died, February 28.

Clarence Philip Holoffe, West Frankfort, Ill.; University of Illinois College of Medicine, Chicago, 1935; aged 28; died, March 10, in the Barnes Hospital, St. Louis, of acute myocarditis.

George Walton Greene, Auburn, N. Y.; University of the City of New York Medical Department, 1887; aged 77; died, February 14, of bronchopneumonia following a fracture of the femur.

Joseph Henry Hart Kelley, Boston; Tufts College Medical School, Boston, 1898; member of the Massachusetts Medical Society; aged 62; died, February 18, of carcinoma of the tongue.

Henri F. Bartens, Santa Monica, Calif.; Homeopathic Medical College of Missouri, St. Louis, 1876; St. Louis College of Physicians and Surgeons, 1892; aged 90; died, January 19.

Wallace Dale Miller, Dayton, Ohio; Ohio State University College of Medicine, Columbus, 1933; aged 36; died, February 21, of injuries received in an automobile accident.

Robert Greiderer, St. Louis; Leopold-Franzens Universität Medizinische Fakultät, Innsbruck, Austria, 1911; aged 53; died, March 6, in the City Hospital of hypostatic pneumonia.

Marion Nathaniel Wood, Florence S. C.; University of Georgia Medical Department, Augusta, 1891; aged 74; died, February 25, of hypertension and cerebral hemorrhage.

Julian Addison Pollard, Springfield, Mass.; University of Vermont College of Medicine, Burlington, 1882; aged 87; died, February 20, of arteriosclerosis and diabetes mellitus.

George M. Joseph, Morgantown, W. Va.; Eclectic Medical Institute, Cincinnati, 1890; aged 72; died, February 3, in the St. Francis Hospital, Pittsburgh, of cerebral hemorrhage.

Orla E. Kuhn, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1904; on the staff of the Garfield Park Community Hospital; aged 61; died, March 8.

Andrew Barnard Cushman, South Dartmouth, Mass.; University of Vermont College of Medicine, Burlington, 1886; aged 83; died, February 13, of coronary thrombosis.

Schuyler A. Barber, Porterville, Calif.; Cooper Medical College, San Francisco, 1899; aged 70; was found dead, February 14, of coronary disease and cirrhosis of the liver.

Otto L. Bergner, Milwaukee; Milwaukee Medical College, 1908; member of the State Medical Society of Wisconsin; aged 57; died, February 14, of carcinoma of the stomach.

Maxwell Wallace, Emerson, Man., Canada; Manitoba Medical College, Winnipeg, 1903; aged 69; died, February 26, in Halloch, Minn., of cerebral hemorrhage and uremia.

Stephen Cleary, San Francisco; University of California Medical Department, San Francisco, 1894; aged 79; died, February 16, in St. Mary's Hospital of pneumonia.

Ellen Louisa Keith, Grafton, Mass.; Boston University School of Medicine, 1888; aged 88; died, February 5, in Westboro of cerebral hemorrhage and arteriosclerosis.

George Morehouse Purves, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1895; aged 65; died, February 21, of coronary thrombosis.

Frederick H. Thaxton, Elkview, W. Va.; Kentucky School of Medicine, Louisville, 1907; aged 59; died, February 22, in a hospital at Charleston of cerebral hemorrhage.

James H. Montgomery, Gainesville, Fla.; Medico-Chirurgical College of Philadelphia, 1898; aged 64; died, February 16, in the Alaclua County Hospital.

Bernard E. Murphy, Los Angeles; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; aged 60; died, January 18.

Harry Francis Tye, Philadelphia; Temple University School of Medicine, Philadelphia, 1924; aged 40; died, February 26, in the Stetson Hospital of myocarditis.

Henry F. Wilton, Nocona, Texas; Missouri Medical College, St. Louis, 1885; aged 82; died, February 12, at a hospital in Fort Worth of cerebral hemorrhage.

T. Selden Stewart, Buffalo; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1883; aged 88; died, February 23, of bronchopneumonia.

Carl Herman Lehnern, Reno, Nev.; Cooper Medical College, San Francisco, 1903; aged 61; died, February 25, of arteriosclerosis and heart disease.

Daniel Patrick Doyle, Jamaica, N. Y.; University of the City of New York Medical Department, 1890; aged 74; died, February 9, of chronic nephritis.

Frank A. Martin, Bowdon, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1886; aged 75; died, February 27, in Atlanta of myocarditis.

William A. Jones, Quincy, Ill.; Missouri Medical College, St. Louis, 1880; aged 82; died, February 10, in Middletown, Ohio, of coronary sclerosis.

Joseph M. Miller, Charles Town, W. Va.; College of Physicians and Surgeons, Baltimore, 1877; aged 86; died, February 28, of senility.

Samuel Schulhofer, Santa Monica, Calif.; Columbia University College of Physicians and Surgeons, New York, 1901; aged 61; died, January 1.

James Franklin Rudy, Jenera, Ohio; Starling Medical College, Columbus, 1892; aged 77; died, February 18, of pneumonia and heart disease.

Thomas White Peden, Van Vleet, Miss.; Memphis (Tenn.) Hospital Medical College, 1901; aged 67; died, February 22, of coronary thrombosis.

John Campbell Mason, Herminie, Pa.; Chicago College of Medicine and Surgery, 1913; aged 66; died, February 18, of coronary occlusion.

Thomas Joseph Dowd, Ticonderoga, N. Y.; Albany (N. Y.) Medical College, 1904; aged 58; died, February 19, of cardiorenal disease.

Alfred Creigh Stevenson, Oakdale, Pa.; Jefferson Medical College of Philadelphia, 1871; aged 93; died, February 23, of bronchopneumonia.

John J. Sledge, Burns, Tenn.; University of Tennessee Medical Department, Nashville, 1880; aged 78; died, February 29, in Nashville.

Daniel E. Cullers, Stella, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1896; aged 71; died, January 31, of angina pectoris.

Charles Asahel Gould, Braintree, Mass.; Harvard Medical School, Boston, 1881; aged 82; died, February 21, of carcinoma of the prostate.

William P. Washington, Rayville, La.; Medical College of Alabama, Mobile, 1891; aged 81; died, February 28, of chronic myocarditis.

Cornelius R. Collins, Omaha; John A. Creighton Medical College, Omaha, 1900; aged 67; died, February 22, of lobar pneumonia.

Raymond D. Cashatt, Oakland, Calif.; Willamette University Medical Department, Salem, Ore., 1904; aged 62; died, January 6.

Robert Ayres, Pittsburgh; University of Pittsburgh School of Medicine, 1912; aged 51; died, January 16, of coronary occlusion.

Marius C. Sorensen, Huron, S. D.; National Medical University, Chicago, 1901; aged 72; died, February 27, of pneumonia.

George Richard Luke, Ashburn, Ga.; Atlanta School of Medicine, 1906; aged 57; died, February 19, of coronary thrombosis.

Otto Fuchs, New York; Long Island College Hospital, Brooklyn, 1899; aged 73; died, January 28, of coronary sclerosis.

Louis Levin, Los Angeles; Temple University School of Medicine, Philadelphia, 1910; aged 53; died, January 23.

Correspondence

CHEMICAL TESTS FOR INTOXICATION

To the Editor:—The criticism of certain chemical tests for intoxication made in *THE JOURNAL*, March 23, page 1098, by Dr. Chauncey D. Leake and his associates is somewhat vague as to just how their experiments were conducted.

The sample of necropsy blood may have been contaminated with embalming fluid, although a test for formaldehyde would have settled this point. I have found that even the cap of an embalming fluid bottle can contaminate a small sample of blood stored in such a bottle.

That a trace of endogenous "alcohol" is present in the blood and tissues of a nondrinking person has been repeatedly demonstrated during the past eighty years. In 1935 (*Am. J. Physiol.* 112:374 [June] 1935) Dr. Anna L. Goss and I published experiments indicating that even this trace of volatile reducing substance—usually less than 1 mg. per hundred cubic centimeters—is mostly not preformed alcohol. This trace of "normal alcohol" is too small to cause a significant error in the usual chemical tests for intoxication, as has been demonstrated by numerous control studies carried out by the originators of the various chemical tests for alcohol and by hundreds of workers all over the world in using these tests.

The figures for endogenous "alcohol" reported by Dr. Leake and his associates (from 50 to 200 mg. per hundred cubic centimeters!) are amazing, and other workers should confirm these observations.

The blood lactic acid hypothesis proposed by the University of California pharmacologists certainly does not add to the credibility of their claims. Under the conditions employed lactic acid is practically nonvolatile, as could be learned by consulting their colleagues in the chemistry department (Allen's *Commercial Organic Analysis*, ed. 5, Philadelphia, Blakiston Company 1:776, 1924).

Even if these claims are confirmed, they have little application to living subjects.

Perhaps I should welcome an attack on Dr. Heise's method, since his apparatus is the chief competitor to my "drunkometer" in police laboratories, but criticism should be reasonable and supported by ample evidence.

R. N. HARGER, PH.D., Indianapolis.

Professor of Biochemistry and Toxicology,
Indiana University School of Medicine.

IS SULFANILAMIDE DANGEROUS TO BABIES?

To the Editor:—Unjustified clinical analogies drawn from excellent experimental work in animals may be unfortunate. For instance, an editorial comment in *THE JOURNAL*, March 30, page 1271, summarizes the article "The Placental Transmission of Sulfanilamide and Its Effects on the Fetus and Newborn" by Speert (*Bull. Johns Hopkins Hosp.* 66:139 [March] 1940). This experimental work is adequately controlled and clearly demonstrates the toxic effect on the fetus and newborn rat from tremendous doses of sulfanilamide administered during pregnancy. The conclusion "until further observations have been made of the effects of sulfanilamide upon the human fetus, the drug should be administered with extreme caution during pregnancy" is an assumed human analogy not supported by data presented. The dose of 1 Gm. of sulfanilamide per kilogram of body weight administered to animals throughout pregnancy is not comparable to the average clinical dose taken by human beings. On the basis of the experimental quantities, an analogous dose for an average woman weighing 50 Kg. would approximate 750 grains (50 Gm.) of sulfanilamide daily through-

out pregnancy, or the maintenance of a mean blood level of 19.7 mg. per hundred cubic centimeters and a standard deviation of ± 8.1 . Speert recognizes that toxic doses in rats are not comparable to therapeutic doses in women. We heartily endorse his statement: "It is hazardous to carry over to one species conclusions from experimental observations made upon another. Moreover, in the present experiments the blood sulfanilamide levels were much higher than usually reached in the treatment of human patients. Also the administration of the drug was continued throughout gestation, in contrast to the relatively shorter periods of therapy that are usually required clinically. No claims can therefore be made for any clinical application of these experimental findings."

Our clinical studies fail to show any harmful effects on the baby. We reported (Sulfanilamide Excretion in Human Breast Milk and the Effect on Breast-Fed Babies, *THE JOURNAL*, Oct. 15, 1938, p. 1456) no untoward effects on breast-fed babies when the mothers were given 60 grains (4 Gm.) of sulfanilamide daily during the first eight postpartum days. Likewise, administration of from 40 to 60 grains (2.6 to 4 Gm.) of sulfanilamide during labor had no effect on the babies. In an unreported series of eleven cases of pyelitis during the midperiod of pregnancy, doses sufficient to maintain blood sulfanilamide levels of from 7 to 10 mg. per hundred cubic centimeters were administered for from eight to twelve days. Observation of their babies has not disclosed any evidence that therapeutic doses of sulfanilamide taken by the mother affects the baby unfavorably.

J. P. PRATT, M.D.

H. L. STEWART JR., M.D.

Detroit.

THE SIMS SPECULUM

To the Editor:—In the March 9 issue of *THE JOURNAL*, page 912, the question of retrodisplacement of the uterus following trauma was considered. I think that an experience of Dr. J. Marion Sims is of great interest and would like to call attention to it. On page 15 in *Clinical Notes on Uterine Surgery*, written by Dr. Sims and published by William Wood & Co. in 1886, appears the following: "In December 1845, a lady riding a pony in Montgomery, Alabama, fell striking her pelvis and suffering contusions of the back and rectal and vesical tenesmus. The uterus was found in complete retroversion, which was replaced with the patient in knee-chest position, by manual pressure and accidental introduction of air. On deliberation of a patient with a vesicovaginal fistula and of the vagina which ballooned with the introduction of air, the Sims Speculum was invented."

THOMAS J. PARKS, M.D., New York.

BRONCHOBILIARY FISTULA

To the Editor:—In *Tonics and Sedatives in THE JOURNAL*, Dec. 9, 1939, you carry the following newspaper report, which was sent to you by a number of different correspondents:

PRYOR (Okla.) Oct. 31. (U. P.)—Mrs. Homer Stout, 46-year-old farm woman whose case medical scientists had watched as the latest and perhaps the most thorough test yet of refrigeration treatment of cancer, died late today of a second affliction.

Dr. Van Dolph Herrington announced after an autopsy that death resulted from a gallstone block of bile ducts that forced the fluid into Mrs. Stout's lungs and suffocated her.

The fact that this item was picked up in so many different quarters and sent in to *Tonics and Sedatives* indicates, I presume, a widespread incredulity as to anatomic background for the reported diagnosis.

In this connection, however, it may be well to remember that the condition of bronchobiliary fistula is not by any means unknown. It appears to be true that most of these fistulas are secondary to "hydatid infestation of the liver with intraduct

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rupture," as stated by Miller, of Sydney, Australia. This same author, however, in the *British Journal of Surgery* (27:425 [Oct.] 1939) reports a bronchobiliary fistula following traumatic stenosis of the common duct. The patient in this instance, following cholecystectomy, suffered intense pain and intermittent jaundice, which later became complete. Five months afterward he suddenly coughed up a large quantity of bile and thereafter expectorated 60 ounces (1,800 cc.) of bile in twenty-four hours, apparently with relief of the jaundice and pain. It is very easy to imagine that if this patient had been comatose under cryotherapy he would have aspirated a portion of this huge quantity of bile and thus suffocated, just as the unfortunate patient of the newspaper item was said to have done.

THOMAS C. McVEAGH, M.D., Honolulu, T. H.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CHRONIC UNDULANT FEVER

To the Editor:—A white woman aged 30, single, complains of fever of three years' duration. The mother died of rheumatic heart disease at about 50. The past history is irrelevant except for the usual childhood fever and about three years ago she felt run down and had a low grade fever and was bothered with constipation. She was operated on for appendicitis but the fever following operation did not recede and there was a stormy postoperative course characterized by fever of 101 to 103 F. A blood test for undulant fever as well as a cutaneous test was said to have been positive at this time and she was later treated with Huddleson's antigen, sulfanilamide and typhoid vaccine intravenously without demonstrable results as far as the persistence of the fever was concerned. She has since been trying to go about her duties but has a fever almost every day ranging from 99 to 100 F. She feels despondent at times and has thought of suicide. She is easily fatigued and at times is unable to talk correctly when tired. A recent blood test is questionable. Physical examination is essentially negative and the chest roentgenograms are not remarkable. The blood count and hemoglobin are normal. The agglutination titer for typhoid is 1:640 but this was interpreted as the result of the injections of typhoid vaccine persist for this length of time? 2. Is a positive cutaneous test for undulant fever in the absence of a positive blood test (a test with a titer below 1:80) with clinical symptoms sufficient for a diagnosis of this disease? 3. In cases of chronic undulant fever are mental changes and changes in personality frequent? 4. Is there any treatment for a case of this kind? 5. What is the prognosis and outlook for chronic cases of undulant fever? Any references you can give on this case will be greatly appreciated.

M. C. Davis, M.D., Portland, Ore.

ANSWER.—1. The chronic form of brucellosis (undulant fever) often persists for several years.
2. A positive allergic cutaneous test in the absence of a positive agglutination test may or may not have diagnostic significance. While most patients with the more severe acute form of brucellosis will exhibit both positive agglutination tests in high titer and positive intradermal reactions, persons suffering from chronic brucellosis often have repeatedly negative agglutination tests and positive cutaneous tests. The chief sources of error lie in the fact that either or both tests may be positive in exposed individuals with no history of an illness compatible with brucellosis. Furthermore, the cutaneous test sensitiveness, once acquired, often persists for many years. Therefore it must be emphasized that a positive cutaneous test does not mean that the symptoms from which the patient is suffering at the time of a positive cutaneous test are necessarily due to brucellosis. It is hazardous to base a diagnosis of brucellosis solely on the fact that a cutaneous test is positive.
3. Psychic disturbances and changes in personality are frequently observed in cases of chronic brucellosis. The almost universal prominence of symptoms which relate to the central nervous system. In addition to the occasional regional invasion of the meninges, brain and spinal cord by *Brucella*, there is evidence that the endotoxin of *Brucella* organisms circulating in the blood has a toxic action on the central nervous system. These observations led Alice Evans (*THE JOURNAL*, Sept. 1, 1934, p. 665) to state: "These facts challenge the

right of a physician to make a diagnosis of neurasthenia—a diagnosis regarded as dishonorable by the patient, and also by his family, his employer and his friends—without considering, among other possibilities, the possibility of chronic brucellosis."
4. *Brucella melitensis* (abortus-suis) vaccine N. N. R., brucellin (Huddleson) and the production of artificial fever by injections of typhoid-paratyphoid vaccine or preferably by physical means apparently yield the best results in the treatment of brucellosis. There is little evidence that sulfanilamide therapy produces any lasting benefit.
5. The outlook in cases of chronic brucellosis has improved considerably during the past few years. With judicious supportive and specific therapy most patients recover or improve greatly within a few weeks or months after the institution of treatment.

The following references are suggested:

- Simpson, W. M.: Undulant Fever (Brucellosis) with Reference to 148 Cases Encountered in and About Dayton, Ohio, *J. Indiana M. A.* 27:564 (Dec.) 1934.
DeJong, R. N.: Central Nervous System Involvement in Undulant Fever, with Report of a Case and a Survey of the Literature, *J. Nerv. & Ment. Dis.* 83:430 (April) 1936.
Calder, R. M.: Chronic Brucellosis, *THE JOURNAL*, Sept. 1, 1933, p. 665.
Evans, Alice C.: Studies on Chronic Brucellosis: I. Introductory, *Health Rep.* 52:1072 (Aug. 6) 1937; II. Description of Specific Tests, *ibid.* 52:1419 (Oct. 8) 1937.
Poston, M. A.: Studies on Chronic Brucellosis. III. Methods Used in Obtaining Cultures, *Pub. Health Rep.* 53:1 (Jan. 7) 1938.
Angle, F. E.: Treatment of Acute and Chronic Brucellosis (Undulant Fever), *THE JOURNAL*, Sept. 21, 1935, p. 939.
Evans, Alice C.: Difficulties in the Diagnosis of Chronic Brucellosis, *Ann. J. Trop. Med.* 19:319 (July) 1939.
Ervin, C. E., and Hunt, H. F.: The Diagnosis and Treatment of Undulant Fever, *THE JOURNAL*, Dec. 11, 1937, p. 1966.
Prickman, L. E.; Bennett, R. L., and Krusen, F. H.: Treatment of Brucellosis by Physically Induced Hyperpyrexia, *Proc. Staff Meet., Mayo Clin.* 13:321 (May 25) 1938.

TREATMENT AND PROGNOSIS OF SPONGIO-BLASTOMA MULTIFORME

To the Editor:—A patient of 60 was operated on for a brain tumor involving the right frontal lobe. Almost two thirds of the interior portion of the frontal lobe was removed, with a subsequent paralysis of the left side of the face, and the left arm, and weakness of the left leg. The tumor was incompletely removed. The pathologic diagnosis was spongioblastoma multiforme. Is subsequent roentgen or radium treatment advisable? If so, how soon after operation should it be started and also in what dosage? Is this type of tumor amenable to such treatment? If there is the prognosis of such a case as to probable life expectancy? If there is regrowth causing pressure symptoms, is operative intervention advisable?

M.D., Pennsylvania.

ANSWER.—Spongioblastoma multiforme, more commonly designated glioblastoma multiforme, is the commonest and most malignant of the cerebrum, and it is the most malignant and invasive as well. The degree of malignancy and its radiosensitivity vary with the cell type, but because of its malignant nature and because in most cases, like that in question, the tumor is incompletely removed, subsequent roentgen or radium therapy is usually employed. Such treatment should be started as soon after the operation as the patient becomes ambulatory and able to be taken to the treatment room. Usually this is in a week to ten days, at which time the scalp is healed. Any delay is inadvisable.

There is a wide diversity of opinion as to the efficacy of roentgen and radium treatment for glioblastoma multiforme. Most authorities advise its use, but even so these authorities are in most instances none too hopeful over the results. Cushing used it and advised others to do so, but he stated that there was usually a recurrence in from six to eighteen months in spite of wide operative removal or subsequent roentgen treatment. He advised reoperation on recurrence of the tumor if the patient's condition warranted it, but he stated that heavy x-ray dosage gave little or no relief in cases of advanced regrowth. Davis, in a comparison of the survival period between patients given roentgen therapy and patients not thus treated, showed that actually there was little difference. Many factors affect the survival period: location of the tumor, its cell type, the age and general condition of the patient, and the effects of operation (wide removal, biopsy or decompression).
There is no standard of dosage or technique in the use of either x-rays or radium. There is no particular choice between the two. In using x-rays, high voltage therapy should be employed. A single full dose is usually approximately from 800 to 1,000 roentgens or it may be as low as from 400 to 500 roentgens. From 800 to 1,000 roentgens may be given once a week at one sitting, repeated for from four to eight weeks; or 500 roentgens may be given daily for four times and repeated in from six to eight weeks. After from six to eight months, another series of

four treatments is given. In using radium in a series of fourteen patients, Davis used two ports and gave 2,000 mg. hours each day until a total of 80,000 mg. hours of radium through each of the two ports had been given. That is, each patient received 160,000 mg. hours of radium.

The eventual prognosis is in any case poor, and the probable life expectancy under any conditions is not more than thirty months.

SULFAPYRIDINE CONTRAINDICATED IN PROPHYLAXIS OF PNEUMONIA

To the Editor:—Many physicians are prescribing sulfapyridine as a prophylaxis against pneumonia. A patient develops a cold and high fever and some physicians are prescribing sulfapyridine immediately. Is this good practice when one does not or can not get a check on the blood or urine? Is it safe to do that on almost any patient for twenty-four or forty-eight hours?

Clifton F. West, M.D., Kinston, N. C.

ANSWER:—It is unfortunate if physicians are prescribing sulfapyridine in the prophylaxis of pneumonia, because such a practice is unwise and may be dangerous for the patient. Sulfapyridine should be prescribed only when signs and symptoms of an actual involvement of the bronchi and lungs exist. This means that if the patient has a cold with fever, or influenza, sulfapyridine should not be administered unless definite physical signs of a bronchitis or of an early pneumonia are present. If signs of bronchitis are present, one does not need to wait until further signs develop before using the drug. Obviously it is always a good practice, if sputum can be obtained, to attempt to culture or type the sputum for the presence of pneumococci or other organisms that would be susceptible to sulfapyridine therapy. While sulfapyridine now constitutes the sheet anchor in the treatment of acute infectious pulmonary disease, it should be used only when disease is present.

Acute hemolytic anemia, acute leukopenia with neutropenia, drug fever, drug rashes, hematuria and anuria have been reported as occurring within the first forty-eight hours of the therapeutic use of sulfapyridine. Hence, unless the signs and symptoms of a definite pulmonary involvement are present, the drug should not be used in the prophylaxis of pneumonia.

PREVENTION AND TREATMENT OF LOCAL ANESTHETIC REACTIONS

To the Editor:—Is has recently been called to my attention that to combat the effects of procaine hydrochloride solution when injected into the blood stream there is now a preparation being advocated which is essentially an intravenous barbiturate solution. I have been of the opinion, up until this time, that coramine in from 2 to 5 cc. quantities was a good preparation with which to combat collapse from local anesthesia. Please advise me as to the correct preparation and the situations in which they should be used.

L. F. Valentine, M.D., North Platte, Neb.

ANSWER:—Procaine hydrochloride (novocain) toxicity, whether from accidental intravenous injection or from too rapid absorption, manifests itself in either of two fairly well defined reactions. One is a condition varying in degree from faintness to severe collapse, the second from mild excitement to convulsions.

The treatment resolves itself into prophylactic and combative efforts. As prophylaxis against procaine reaction may be mentioned the use of epinephrine-like vasoconstrictors in the procaine solution, a slow rate of injection, low drug concentration and the use of barbiturates. The barbiturates when given in small doses by mouth well in advance of the injection depress the cerebral cortex and are of some value in preventing the minor reactions, which are presumably due to the fear of the injection and the impending operation. It is doubtful whether the barbiturates when given in the small doses which will accomplish this result will prevent the convulsive effect of procaine.

When collapse or convulsion occurs, the important thing to combat is the resultant anoxia by means of artificial respiration with or without oxygen. Should the reaction be accompanied by a persistent convulsion, this demands additional treatment. The value of a barbiturate derivative given intravenously lies in its anticonvulsant properties. The barbiturates should be administered symptomatically; that is, by fractional doses until the convulsion is controlled. For this purpose one of the shorter acting barbiturates, such as pentothal sodium, has been found best. Barbiturates will be of some value if convulsions exist, but artificial respiration is of the utmost necessity and this should be given first without delay and maintained until adequate respiration is reestablished.

Analeptics such as nikethamide [pronounced nik-eth-amide] (coramine) in the face of an already damaged respiratory center or in impending respiratory paralysis from anoxemia have not been found to exert a stimulant action but, on the contrary, may be severely depressant.

BANTI'S SYNDROME

To the Editor:—At a recent staff meeting Banti's disease was mentioned. I was under the impression that recent research had brought out the fact that there was only a Banti's syndrome but not a disease as a distinct clinical entity. Please discuss the present status of this syndrome or disease.

Robert Augentfeld, M.D., Yonkers, N. Y.

ANSWER:—At present the term "Banti's syndrome" appears to be preferable to "disease," as the group of symptoms may be the result of a number of mechanisms. The changes in the spleen and liver are not specific for this one condition but are characteristic of other types of cirrhosis of the liver with splenomegaly. No specific causation has been described, and the thrombophlebitis of the splenic vein noted in some of the cases is not a special type. The progressive anemia is not unlike that in other types of cirrhosis of the liver, being microcytic when there is acute or chronic hemorrhage and macrocytic when the liver lesion is marked but otherwise not complicated. The term "Banti's syndrome," however, is useful to classify certain cases of splenomegaly, progressive cirrhosis and anemia, with the terminal symptoms which accompany hepatic cirrhosis, often, but not always, marked by three more or less indefinite stages. Unfortunately, however, there is no clearcut diagnostic feature which typifies this syndrome, and many examples of other diseases are classified under this heading.

AUTOHEMOTHERAPY

To the Editor:—What are the indications for autohemotherapy? What are the dangers, if any, associated with its use and what is the rationale of treatment? I have been using this treatment for some five or six years in a varied number of infections, particularly pelvic infections in women, ivy poisoning which did not respond to ordinary methods of treatment, pernicious vomiting of pregnancy and various dermatoses, most of which were allergic in character. My results have been satisfactory in all cases except the cutaneous lesions, not including ivy. I should like to be able to give an intelligent explanation of why this method of treatment is successful in most cases and not successful in others.

Henry B. Hibbe, M.D., Dubuque, Iowa.

ANSWER:—Autohemotherapy seems to have had its origin in the Hahnemann school under theegis of "similia similibus curantur." As early as 1828 mention of this type of therapy appears in the American literature. The relatively recent foreign literature abounds with references to the subject, but little attention has been paid to it in this country. The indications for its use are not clearly drawn, as many of the proponents have been guided by enthusiasm rather than by carefully controlled observation. One author gives the indication as "any chronic complaint whether it be in the head, the stomach, or the feet, the joints, or the skin; in short, any region in which blood circulates." Fortunately, more recent and more critical work has limited the scope of its application and promises to bring some sort of order into the chaotic situation. It seems to relieve a fair number of patients suffering from ivy poisoning. Its success in the treatment of psoriasis, eczema and other dermatologic conditions is highly problematic. Recent work would indicate some beneficial effect in the vomiting of pregnancy, although the evidence is rather scanty. Most gynecologists have failed to be impressed by its use in acute pelvic infections.

Its mode of action is not understood. It has been attributed to protein shock, to an increase in the bactericidal power of the blood, to an increase in the fixation power of the reticulo-endothelial system and to a number of other intangible factors. The bulk of opinion today would argue that if it is effective at all it operates as an obscure desensitizing mechanism.

No dangers accompany its use except the danger of infection that attends any intramuscular injection.

EFFECTS OF HORSEHAIR IN CIGARETS

To the Editor:—I have been asked about putting horsehair in cigarettes to stop boys from smoking. One of our school coaches did this to his group of football boys and one of them got quite ill. Will you kindly advise me of the cause, reaction, danger and treatment, as I am expecting to be called on to care for some of those so treated.

R. H. Kerr, M.D., Almo, Neb.

ANSWER:—The insertion of horsehair in cigarettes to stop boys from smoking, or as a practical joke, has been verbally reported in widely scattered sections of the country, but no scientific study of the practice has yet been published. In view of the high cysteine content of hair, the production of sulfur compounds in the incomplete oxidations and distillation of smoking might be suspected to be a factor in the reactions produced. However, purified and defatted hair seems much less noxious than does fresh unwashed hair, suggesting that acrolein and other products of the breakdown of fatty secretion on the hair may

be responsible for the noxious effect. The heating and combustion of any animal tissue, especially incomplete oxidations, give rise to nauseating volatile compounds which may be especially toxic to sensitive individuals. In novices the smoke of tobacco or even of the various tobacco substitutes used by the young to simulate it may induce emesis and vasomotor collapse. This is usually a self-limited condition, with little danger involved, and reassurance may be sufficient treatment, although stimulation, sedation and elimination may be of value in specific instances.

TETANUS AFTER ANTITOXIN

To the Editor:—Recently I had the following case: A fish-store man aged 44 almost chopped his thumb off at the base with a large fish cleaver. It was a clean cut and there was profuse hemorrhage (close to a pint). Hemorrhage was controlled by suturing, and 1,000 units of toxin-antitoxin was given. There was 1,500 units of the tetanus antitoxin in a syringe but a drop or two was wasted, owing to movement by the patient. Hot dressings were applied to the hand for a couple of days. The wound healed promptly. Eleven days later the man developed tetanus and died a week later. 1. How frequently does tetanus develop in cuts of this type, especially after serum has been given? 2. This man frequently scratched and cut himself during his work. Is it conceivable that another preexisting lesion was the cause of the tetanus? 3. On the facts as given, was it negligent not to have given another injection?

Arnold L. Lieberman, M.D., Gary, Ind.

ANSWER.—1. An exact answer to this question cannot be made. All that can be said is that tetanus may develop after such cuts even if antitetanus serum is given, as in this case.

2. Yes. It is conceivable that the tetanus may have developed from the entrance of tetanus bacilli through some other lesion. The apparent incubation period—eleven days—corresponds well to the usual incubation period of tetanus, namely a few days to about two weeks.

3. The usual dose of tetanus antitoxin for preventive purposes is 1,500 units and consequently there can be no question of negligence in this case.

WAVELENGTHS OF FLUORESCENT LAMPS NOT INJURIOUS TO EYES

To the Editor:—I have been asked by a local business firm regarding the lighting of part of its factory. The installation is by lamps from the Hygrade Sylvania 100 Fluorescent lamps. Lamps consist of 40 watt blue white tubes. The tube number was T 12. Some of the employees have complained of their eyes since being under these lights, and the employer hesitates to add to his present installation if there are spectral elements that increase eye sensitivity. G. F. Harkness, M.D., Davenport, Iowa.

ANSWER.—The 40 watt blue white T 12 fluorescent lamps of the Hygrade Sylvania Corporation do not give any "special elements," that is, any special wavelengths of light which are injurious to the eyes. If employees complain when working under these lights, the fault is not in the wavelength or quality of the light given out by these lamps but in the way they are used. The two important features of lighting are the amount of light and the distribution of light. There is no excuse for insufficient light, and if the distribution is taken care of the results will be satisfactory. The wavelength is unimportant except in a case in which color matching is involved.

Without knowing some of the details, the kind of work done, the general surroundings in the workroom, the kind of light which was formerly used and the reason for changing, it is impossible to give a critical evaluation of the lighting installation.

HODGKIN'S DISEASE AND BRUCELLOSIS

To the Editor:—In Queries and Minor Notes in The Journal, March 16, page 1006, is a question entitled Hodgkin's Disease and Sulfanilamide. I should like to offer a possible explanation as to the unusual behavior of this patient with probable Hodgkin's disease after the administration at sulfanilamide. Parsons and Paston (Pathology at Human Brucellosis, South. M. J. 32:7 [Jan.] 1939) reported four cases of "chronic brucellosis which presented a clinical and histologic picture strikingly similar to that of Hodgkin's disease." Their observations were commented on in The Journal, February 10, under Current Comment. It would apparently be premature to state that Brucella is the etiologic agent in Hodgkin's disease, in spite of such significant observations. However, the possible relationship cannot be ignored. Does it not seem possible that the patient described had an infection with Brucella which simulated or actually caused a clinical and histologic picture of Hodgkin's disease and that the improvement following sulfanilamide is ascribable to the and that the improvement following sulfanilamide is ascribable to the well established bacteriostatic effect of sulfanilamide on the Brucella organism? It might be of value if this patient should now be studied from the point at view of Brucella infection. In view of the tendency of the blood agglutination test to be negative in chronic brucellosis or positive only in a low titer, a cutaneous test with heat killed Brucella abortus vaccine and an opsonocytaphic test would be indicated. If possible, culture of the blood for Brucella using the technique of Poston should also be undertaken as well as culture of an involved gland, if further excision of gland tissue is permitted. Harold J. Harris, M.D., Westport, N. Y.

Council on Medical Education and Hospitals

PENNSYLVANIA STATE BOARD OF EXAMINERS FOR REGISTRATION OF NURSES APPROVES ADDITIONAL HOSPITALS

In addition to the hospitals designated as approved by the State Board of Examiners for Registration of Nurses in Pennsylvania in THE JOURNAL, March 30, the board now announces full approval of the following hospitals:

Mercy Hospital	Altoona
Providence Hospital	Beaver Falls
St. Joseph's Hospital	Carbondale
Clearfield Hospital	Clearfield
Mercy Hospital	Johnstown
Good Samaritan Hospital	Lebanon
Ohio Valley General Hospital	McKees Rocks
Meadville City Hospital	Meadville
Spencer Hospital	Meadville
Henry Clay Frick Memorial Hospital	Mount Pleasant
Beaver Valley General Hospital	New Brighton
Mercy Hospital	Scranton
St. Mary's Mate	Wyoming Valley

Notice of the approval of these additional hospitals reached THE JOURNAL too late for publication in the Hospital Number.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 18-20. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARKANSAS: Basic Science, May 25. Sec., Mr. Louis E. Gelauer, 701 Main St., Little Rock. Medical (Regular), Little Rock, June 6-7. Sec., Dr. D. L. Owens, Harrison. Medical (Eclectic), Little Rock, June 6-7. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: Oral examination (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), Los Angeles, July 15. Written examination, San Francisco, June 24-27. Sec., Dr. Charles B. Pinkham, 1020 N St., Sacramento.

CONNECTICUT: Basic Science, New Haven, June 8. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

DELAWARE: Examinations, Dover, July 9-11. Reciprocity, Dover, July 16. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: Washington, May 13-14. Sec., Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Basic Science, De Land, May 25. Sec., Prof. John F. Conn, De Land. Medical, Tampa, June 17-18. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June. Joint-Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

ILLINOIS: Chicago, June 25-27. Acting Superintendent of Registration, Mr. Lucien A. File, Springfield.

INDIANA: Indianapolis, June 18-20. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

IOWA: Iowa City, June 4-6. Dir., Division of Licensure and Registration, Mr. H. W. Grete, Capitol Bldg., Des Moines.

KANSAS: Kansas City, June 18-19. Sec., Board of Medical Registration and Examination, Dr. J. E. Hassig, 905 N. Seventh St., Kansas City.

KENTUCKY: Louisville, June 6-8. Sec., Dr. A. T. McCormack, 620 S. Third St., Louisville.

MARYLAND: Medical, Baltimore, June 18-21. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. Homoeopathic, Baltimore, June 18-19. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: Ann Arbor and Detroit, June 12-14. Sec., Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing.

MISSISSIPPI: Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Jackson.

NEBRASKA: Basic Science, Omaha, May 7-8. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, 1009 State Capitol Bldg., Lincoln.

NEVADA: Reciprocity with oral examination, Carson City, May 6. Sec., Dr. Frederick M. Anderson, 215 North Carson St., Carson City.

NEW JERSEY: Trenton, June 18-19. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 24-27. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, 315 Education Building, Albany.

NORTH DAKOTA: Grand Forks, July 2-5. Sec., Dr. G. M. Williamson, 4 1/2 S. Third St., Grand Forks.

OHIO: Columbus, June 3-6. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Basic Science, Oklahoma City, May 9. Medical, Oklahoma City, June 5-6. Sec., Dr. James D. Osborn Jr., Frederick.

OREGON: Medical, Portland, June 18-20. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. Basic Science, July 6. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia and Pittsburgh, July. Dir., Bureau of Professional Licensing, Dr. James A. Newpher, 358 Education Bldg., Harrisburg.

SOUTH CAROLINA: Columbia, June 25. Sec., Dr. A. Earle Bozzer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 16-17. Dir., Medical Licensure, Dr. J. F. D. Cook, Pierre.

TENNESSEE: Knoxville, Memphis and Nashville, June 14-15. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.
TEXAS: San Antonio, June 17-19. Sec., Dr. T. J. Crowe, 918-20 Mercantile Bldg., Dallas.
VERMONT: Burlington, June 11-13. Sec., Dr. W. Scott Nay, Underhill.
VIRGINIA: Richmond, June 18-20. Sec., Dr. J. W. Preston, 30½ Franklin Rd., Roanoke.
WISCONSIN: Milwaukee, June 25-28. Sec., Dr. E. C. Murphy, 314 E. Grand Ave., Eau Claire.
WYOMING: June 3-4. Sec., Dr. M. C. Keith, Capitol Bldg., Cheyenne.

Book Notices

Mineral Metabolism. By Alfred T. Shohl, M.D., Research Associate in Pediatrics, Harvard University, Boston. American Chemical Society Monograph Series. Cloth. Price, \$5. Pp. 384. New York: Reinhold Publishing Corporation, 1939.

There are approximately twenty-four chemical elements in the body. The mineral elements include all but carbon, hydrogen, oxygen and nitrogen. Even these four elements, which make up the organic materials of the body, are found in salts such as ammonium carbonate. Thus the field of mineral metabolism embraces all of physiology. Although the mineral or ash constituents of the body have been known and studied since the beginning of modern chemistry, there have been few comprehensive descriptions of the role of these substances in the structure and function of the body. The present book brings together a vast amount of material, much of it conflicting, which has been scattered in the scientific and medical literature for many years. The author and the publishers have rendered a notable service by making available this brief connected account of the mineral elements in the body.

The material on the mineral composition of the body contains many items of interest. The importance of the skeleton as a reservoir for minerals is emphasized when it is mentioned that it accounts for 83 per cent of the ash of the body. The ash and water of the body are inversely related. As the body grows older, its ash content increases and its water content decreases. Heretofore the data regarding the chloride content of the body at different ages have presented an enigma. The author shows that the chloride tends to be constant, thus maintaining the normal osmotic pressure of the body fluids. Because the water content of the body decreases with maturity, the chloride in the adult is only about half the concentration of chloride in the fetus. Sodium is the only other element which is proportionately less in the adult than in the newborn. Both sodium and chlorine are prominent components of intercellular fluid, which diminishes with maturity. The book contains chapters on the minerals in the physiology of secretion, excretion and the formation of internal secretions. There is a chapter on total base, chloride, ammonium and bicarbonate, and there are chapters on calcium and magnesium, on phosphorus and on each of the other important inorganic elements. Iron, iodine and the elements that occur in traces are not neglected. The chapter on water metabolism is presented in relation to the salts dissolved in the water. There is a chapter on anion-cation relationships and on mineral intakes, balances and requirements during growth, pregnancy and lactation. The significance of the minerals in the acid-base balance of the body is discussed briefly and authoritatively. The relationship is described between sodium and potassium, with particular emphasis on the physiologic differences between these two chemically related elements. In adrenal insufficiency the sodium and potassium ratio of the diet assumes considerable importance. If too much potassium is consumed or if there is failure to give adequate sodium, the latent condition may become manifest; or, if symptoms are already present, they are intensified and death may follow. One reads that in general the Russians consume an acid diet, the Germans an alkaline one. The author concludes that it is still unsettled whether an acid or an alkaline ash diet is more inductive to health. Of spas and mineral waters the author writes "A patient goes to such a place confident that he will attain great benefit. He is located in a pleasant environment which supplies change from his usual activities and worries, and entails also physical rest, mild exercise and recreation. Under such conditions it is not surprising that drinking the waters of the

mineral spring produces benefit. Perhaps the consumption of water itself is important, and drinking 7 or 8 glasses of warm 'aqua destillata' under similar conditions would result in physiologic well-being. Added to this, regular life, regular habits, cathartics and a carefully controlled diet would constitute an armamentarium not to be held lightly."

Balance experiments as a means of measuring the dietary requirements for different age groups are critically evaluated. Except for sulfur, which must be supplied in the form of certain amino acids, all the mineral elements can be utilized when furnished as foods or as inorganic salts. The different calcium and phosphorus requirements at different ages can be explained largely on the basis of the type of tissue that is formed. In the young child the growth of skeletal tissue demands calcium, in the older child the growth of muscle tissue demands more phosphorus. Higher intakes of mineral salts result in greater retention by the body, but it is not clear that these will be continued indefinitely or that high intakes are desirable. All things considered, the book represents a valuable monograph which covers a field which has needed clarification and which is important in physiology, nutrition and medicine.

Cardiovascular-Renal Disease: A Clinicopathologic Correlation Study Emphasizing the Importance of Ophthalmoscopy Based on Material Awarded the Frank Billings Gold Medal at the Scientific Exhibit of the Annual Meeting of the American Medical Association. San Francisco, June, 1938. By Lawrence W. Smith, M.D., Professor of Pathology, Temple University School of Medicine, Philadelphia, Edward Weiss, M.D., Professor of Clinical Medicine, Temple University School of Medicine, Walter I. Lille, M.D., Professor of Ophthalmology, Temple University School of Medicine, Frank W. Konzelmann, M.D., Professor of Clinical Pathology, Temple University School of Medicine, and Edwin S. Gault, M.D., Associate Professor of Pathology, Temple University School of Medicine. Cloth. Price, \$4.50. Pp. 227, with 75 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1940.

A book of such composite authorship really should be reviewed by a committee of one pathologist, one internist, one ophthalmologist, a referee and a timekeeper. It comprises a "clinicopathologic correlation study of cardiovascular renal disease, emphasizing the importance of ophthalmoscopy, and is based on the material that was exhibited at the A. M. A. meeting in 1938 and awarded the gold medal." There are five main parts dealing respectively with hypertensive cardiovascular renal disease, essential hypertension, senile atherosclerosis, nephritis and nephrosis. These are followed by a short chapter concerned with the laboratory aspect of the various conditions, and finally an extensive bibliographic chapter that includes practical laboratory tests and graphic analyses. The text is well written, at times in a somewhat colloquial manner, and is poignantly illustrated by comprehensive case reports. All the illustrations are original and consist of either necropsy material or fundus photographs of the reported cases. As the title indicates, especial emphasis is laid on the importance of ophthalmoscopic observations as correlated with clinical and pathologic evidence. The ophthalmologic classification of fundus changes due to cardiovascular renal disease, as popularized by Wagener, is in the main adhered to and the ophthalmoscopic descriptions are good, with emphasis placed on the important aspects and no undue verbosity regarding unessential details. The book is well worth while, for it does much to clear the mental confusion that exists in the mind of the average medical man regarding cardiovascular renal disease, today the greatest cause of death.

Endocrine Gynecology. By E. C. Hamblen, B.S., M.D., F.A.C.S., Associate Professor of Obstetrics and Gynecology, Duke University School of Medicine, Durham, N. C. Foreword by J. B. Collip, M.D., Gilman Cheney Professor of Biochemistry and Pathological Chemistry, McGill University, Montreal. Cloth. Price, \$5.50. Pp. 453, with 169 illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, 1939.

Few tasks are more difficult than the task of reviewing the current data and opinions in the field of endocrine gynecology. No such effort will be received with uniform satisfaction. The book by statement is directed to the general practitioner. Many will find difficulty in digesting the volume of material presented, not through any defect in the author's presentation so much as because of the rapidity with which a whole world of information and misinformation has been accumulated in this field. However, any general practitioner with special interest in the medical phases of gynecology dealing with the endocrines may well find in this book what he is looking for in the way of recent orientation. The gynecologist also, while familiar

with much of the data presented, will profit from the orderly and thorough arrangement and presentation of a large body of information.

The author is to be commended for bringing this review to such a recent date. It must have involved a prodigious labor for one also busy with clinical practice and investigative work. The author is likewise to be congratulated for keeping this a book of clinical information concerning strictly the human female rather than the rodent and monkey. In the main he has adhered faithfully to the dictum of Engle that "There is no way to study human physiology other than to study human beings. Experimental animals seem only to prepare the way for human experimentations."

The book has three main divisions. Part one, entitled *Sex Endocrine Principles*, deals with excellent clarity on the chemistry and pharmacology of the sex principles as well as their related hormones. The second part is concerned with the normal physiology of growth, development, adolescence, maturity and regression. The portion covering growth and development seems overburdened with data in proportion to its importance. Following this ground work the concluding portion of the book discusses endocrinopathic gynecology. In this portion the most grievous error of the book seems to occur. This is the portrayal of numerous so-called classic sex endocrine syndromes. Many of the rare syndromes are probably as "classic" as the author presents them. Such examples are the excessively rare Simmond's disease or the only slightly more common picture of arrhenoblastoma and adult adrenogenitalism (due to tumor of the adrenal cortex). However, it has been the experience of most gynecologists that women with the common endocrine difficulties such as functional menorrhagia or sterility will not all fall neatly into sharply defined groups based on physical characteristics or stature or biometric measurements.

The remaining portion of the book, dealing with functional irregularities of uterine bleeding, functional sterility, gestational abnormalities and the climacteric, is up to the standard of the first section. Along with adequate discussion of endocrine treatment are mentioned some therapeutic utilities and precautions which the reader will do well to heed. Over a thousand important articles are cited in the chapter bibliographies and assimilated aptly into the text and, no doubt, a great many more were consulted.

The book is definitely worth reading and even rereading by those with a serious interest in endocrine gynecology. A chronological summary in the opening pages is helpful in giving a brief panorama of present attainments in endocrinology.

Architecture of the Kidney in Chronic Bright's Disease. By Jean Oliver, Professor of Pathology, Long Island College of Medicine, Brooklyn, N. Y. Cloth. Price, \$10. Pp. 257, with 112 illustrations. New York & London: Paul B. Hoeber, Inc., 1939.

This book presents a summary of previously published and more recent studies of diseased human kidneys by the methods of (1) microdissection, for the examination of the structure of renal units (nephrons) and of the vascular channels, (2) sections and staining of blocks of tissue for microscopic examination of all renal elements in unaltered relationship to one another, and (3) reconstruction in plastic form of serial sections of portions of the kidney. The author has made judicious use of imagination and even of a modicum of teleologic reasoning in an attempt to interpret his objective observations and especially to correlate structural alterations of various elements of the kidney with disturbances of renal function. By the method of microdissection he has been able to establish the existence in the diseased human kidney of the aglomerular nephron and has shown that alterations of tubular structure do not depend directly on pathologic changes in the glomerulus, although the two may frequently be affected in the same nephron. He has also been able to make a good case for the probable functioning ability of the aglomerular tubular complex and has demonstrated the sources of blood supply to the tubular portion of the nephron that are independent of glomerular circulation. These are cited merely as a few examples of many important discoveries that could not have been made by any other method. The book is full of observations of great value for a proper concept of the three dimensional structure of the kidneys in chronic Bright's disease, both inflammatory and arteriosclerotic, as well as to an

understanding of the probable part played by alterations of structure in the impaired excretory function and other important manifestations of renal disease. The problem is of great complexity because the variations of structure of the nephron in a single diseased kidney are legion, in striking contrast to their remarkable uniformity found by Peter in the normal organ. The author rightly feels that he has not exhausted the subject and that some of his interpretations, especially those affecting function, may not be correct; yet the great importance of his contribution to the subject of chronic Bright's disease is obvious from a perusal of the book. The presentation of the subject is well planned. The summaries and frequent "comments," forceful yet restrained and cautious, make for easy reading and understanding of the subject. The Macy Foundation is to be congratulated on making possible the publication of such a valuable book. It is also greatly to the credit of the publisher and entirely in keeping with the policy of the late Paul Hoeber that the publication of a book on such a highly specialized subject was undertaken. The print, illustrations and general physical characters of the book are of high quality. An index would have added value to the book for those especially interested in the subject.

Study of the Distribution of Medical Care and Public Health Services in Canada. Paper. Pp. 184. Toronto: The National Committee for Mental Hygiene (Canada), Division on Public Health and Medical Services, 1939.

The close resemblance between medical problems and proposed solutions in Canada and the United States is clearly shown in this study. Maternal and infant mortality, tuberculosis, cancer, the care of the indigent, and the rural population present the same questions and are being dealt with in much the same way. The description of these adds information that is helpful in conducting experiments in the United States. The report of the study is a compact and valuable handbook for every one interested in the economic problems of medicine.

Dental Health Organizations in State Departments of Health of the United States. By F. C. Cady, Dental Surgeon. From the Division of Domestic Quarantine, Public Health Service. Prepared by direction of the Surgeon General. Federal Security Agency, U. S. Public Health Service. Public Health Bulletin No. 251. Paper. Price, 15 cents. Pp. 86. Washington, D. C.: Supt. of Doc., Government Printing Office, 1939.

Dental personnel are detailed to four divisions of the U. S. Public Health Service: Division of Marine Hospitals and Relief, Division of Domestic Quarantine, Division of Mental Hygiene and the National Institute of Health. The Division of Domestic Quarantine (States Relation) has added a dental consultation service to provide advice on the organization and administration of dental health services in state and local health departments. The National Institute of Health has conducted research into various dental problems connected with public health. The first appointment of a dentist on a state board of health was in Virginia in 1916. By July 1, 1938, there were dental divisions or subdivisions in thirty-five state departments of health. The organization and functions of the dental sections in each of these state departments is described.

Cancer Mortality in the United States. I: Trend of Recorded Cancer Mortality in the Death Registration States of 1900 from 1900 to 1935. By Mary Gover, Associate Statistician, U. S. Public Health Service. From the Division of Public Health Methods, National Institute of Health. Prepared by direction of the Surgeon General. Federal Security Agency, U. S. Public Health Service, Public Health Bulletin No. 248. Paper. Price, 10 cents. Pp. 58, with 18 illustrations. Washington, D. C.: Supt. of Doc., Government Printing Office, 1939.

There have been many studies of the trend in cancer mortality, but conclusions are exceedingly difficult because of the many factors involved, including better diagnosis now than in the past, the increasing average age of the population and improved statistical methods. This pamphlet, by an experienced statistician, constitutes an able report on the subject.

Jewish Contributions to Medicine in America from Colonial Times to the Present. By Solomon R. Kagan, M.D. Foreword by Prof. James J. Walsh. Second edition. Cloth. Price, \$3.50. Pp. 792, with 69 illustrations. Boston: Boston Medical Publishing Company, 1939.

The first edition of this book was published in 1934. The present volume has been considerably extended, so that the book now includes a large amount of important data regarding its subject. There are numerous illustrations, bibliographies and notes, and there is a comprehensive index of personal names.

Poliomyelitis in the City of Melbourne 1937-8. By Hilda W. Bull, B.Sc., M.B., B.S., Medical Officer, Department of Health, Melbourne City Council. Published under the Authority of the Health Committee of the Melbourne City Council. Paper. Grátis. Pp. 56, with illustrations. Melbourne, [n. d.].

In the outbreak of poliomyelitis at Melbourne in 1937-1938, 174 persons had paralytic poliomyelitis, of whom 152 with paralysis survived. Twelve died, six recovered without paralysis and four were nonresidents. Thirty-six recovered after periods of treatment ranging from three to twelve months and were discharged. One hundred and one were still under treatment at the time of the report. The report, however, constitutes particularly a good epidemiologic study of infantile paralysis.

Industrial Health: Asset or Liability. By C. O. Sappington, A.B., M.D., Dr.P.H. Cloth. Price, \$3.75. Pp. 224, with portrait. Chicago: Industrial Commentaries, 1939.

The years of experience of Dr. Sappington make him an eligible choice for a work on industrial health. His book is essentially an outline which begins with a general discussion of the nature of health service and its philosophy, considers many special problems, and discusses as well the practice of industrial health as a specialty. In thirteen main conclusions he summarizes the significant facts brought out by this volume. It is interesting to learn that the sources of the most costly kind of illnesses among employees are largely nonindustrial but the effects are industrial. The author supplies information as to sources of important material. A large appendix to the book provides a series of forms for the use of those interested in industrial health work.

Harvey Cushing's Seventieth Birthday Party, April 6, 1939. Speeches, Letters, and Tributes. Published for the Harvey Cushing Society. Cloth. Price, \$3. Pp. 146, with 9 illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, 1939.

This is essentially a souvenir volume which every one who knew Dr. Cushing will want to own. It contains telegrams, appreciations, greetings, letters, spontaneous tributes and similar notes regarding the life of Dr. Cushing. The work is published *con amore*.

Food Values of Portions Commonly Used. First edition compiled by Anna dePlanter Boves, M.A., Director, Nutrition Education, Philadelphia Child Health Society, Philadelphia, and Charles F. Chureh, M.D., M.S. Second edition by Senior Author. Paper. Price, \$1. Pp. 31. Philadelphia: The Author, 1939.

Such works as these are invaluable in the selection of suitable diets for both those who are sick and those who simply want to reduce. Nowadays we must be intelligent about our mineral salts and vitamins—if nothing else!

What to Do in Case of Accident. Adapted from the article entitled "First Aid to the Injured" by Senior Surgeon M. H. Foster. Revised edition, 1937. Federal Security Agency. United States Public Health Service. Miscellaneous Publication 21. Paper. Price, 10 cents. Pp. 71, with 21 illustrations. Washington, D. C.: Supt. of Doc., Government Printing Office, 1939.

This is a revised pamphlet based on one first published in 1937—a government document exceedingly useful for those living in the country districts or those in charge of first aid stations in industry.

A Mirror for Surgeons: Selected Readings in Surgery. By Sir D'Arcy Power, K.B.E., F.R.C.S., Consulting Surgeon to and Aesthetic at St. Bartholomew's Hospital, London. Cloth. Price, \$2. Pp. 230. Boston: Little, Brown & Company, 1939.

This is a collection of brief biographic sketches of some twenty-two noted surgeons, with quotations from their most significant works. Among Americans included are John Collins Warren, Halsted, Bigelow and Sims. The book should actually be an inspiration to every young American interested in surgery as a career.

Industrial Hygiene. By Various Authors. Edited by A. J. Lanza, M.D., Assistant Medical Director, Metropolitan Life Insurance Company, and Jacob A. Goldberg, M.A., Ph.D., Secretary, Industrial Hygiene Committee, New York Tuberculosis and Health Association. Cloth. Price, \$8.50. Pp. 743, with 46 illustrations. New York, Toronto & London: Oxford University Press, 1939.

This symposium provides a series of essays by specialists in industrial disease who cover such subjects as the scope and organization of health service in industry, physical examination of employees, the relationship of industry to various systems of the human body, and also discussions of special topics like lighting, chemical poisoning and the hygiene and health of the

railroad worker. The book is beautifully printed, authoritative and well illustrated, and each chapter has a suitable bibliography so that altogether it is one of the most useful reference works thus far made available. Finally, the book is supplemented by a most comprehensive index.

Das Ärztebüchlein: Eine Sammlung besinnlicher Worte für die Feierstunden des Arztes, zugleich ein Ratgeber für die tägliche Praxis. Unter Mitbenutzung hinterlassener Aufzeichnungen Erwin Lieks. Von Walther Klusmann. Mit einem Geleitwort von Professor Dr. Klare. Second edition. Cloth. Price, 6 marks. Pp. 267. Leipzig: Georg Thieme, 1940.

This is an excellent collection of aphorisms, paragraphs and brief essays related to the practice of medicine, most of them from the German or from ancient sources. One reads them with a feeling of nostalgia for the German medicine that used to be.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dental Practice Acts: Clinic Operated by Dental College; Recoupment of Overhead Expenses from Patients.—The governor of Georgia, acting on behalf of the state and on relation of the fifth district dental society, sought to enjoin the Atlanta Southern Dental College from practicing dentistry in connection with a dental clinic operated by it. The trial court gave judgment for the college and the plaintiff appealed to the Supreme Court of Georgia.

The dental practice act of Georgia, in part, declares as engaged in the practice of dentistry all persons who shall "charge a fee or salary or any other reward" for specified operations on the teeth, gums or jaws. It further provides that nothing in it shall prohibit regularly chartered dental departments of reputable colleges and universities from maintaining regular college clinics under the supervision of regularly licensed and registered demonstrators. The trial court instructed the jury, in effect, that the defendant college could, without violating the dental practice act, charge clinic patients fees sufficient to take care of overhead expenses, including such items as materials, lights, electric current, water, laundry, obsolescence and depreciation in building and equipment, heat, repairs, printing and stationery, clerks, janitors, maids and such other things as are necessary in the conduct and operation of the clinic. Such a charge, the jury was instructed, would result in no profit to the clinic and would not, therefore, constitute "a fee or salary or any other reward" within the meaning of the dental practice act.

With this interpretation of the act, the Supreme Court could not agree. The object of dental practice, said the court, is to accomplish results which may be done by skilful service alone, as by extracting teeth, or by skilful service plus the furnishing of material adapted to the particular case, such as filling teeth. The statutory definition of dentistry literally refers to service alone, but what the term service embraces must be determined in connection with incidental things convenient or necessary to rendition of the service. When so considered, all such things incidental to the several kinds of service specified in the definition are to be included as overhead or part of the service. Where charges are made for one or more of the overhead or incidental services in connection with operations specifically mentioned in the definition, the practice of performing such operations and charging therefor constitutes the practice of dentistry within the meaning of the statutory definition. Lights, electric current, water, laundry, obsolescence and depreciation in building and equipment, heat, repairs, printing and stationery, clerks, maids and the like, used by the practitioner in connection with his dental office, are incidental or overhead adjuncts, and the inclusion of one or more of these in charges for operations of any of the kinds specified in the act would bring the practice within the statutory definition.

The court did not discuss the exemption in the dental practice act authorizing the operation of clinics by dental colleges

other than by quoting with approval from the case of *Boykin v. Atlanta Southern Dental College*, 177 Ga. 1, 169 S. E. 361:

Much stress is placed by counsel for the defendant on the foregoing words which permit reputable dental colleges and universities to maintain "regular college clinics." The act nowhere defines those words. It does clearly define the "practice of dentistry." Where one charges a fee or salary or any reward, whether paid or unpaid to any one directly or indirectly for dental work, he practices dentistry according to the act. . . . The legislative intent is too clear to permit, by mere construction, an indefinite expression to defeat a definite provision. The indefinite expression, "regular college clinic," must conform to the definite provision as to what constitutes "practice of dentistry" and who may practice. The matter of what constitutes and who may practice dentistry is the major object of the law, and the reference to dental clinics is incidental.

The Supreme Court in the present case, because the trial court had erroneously instructed the jury, reversed the judgment for the defendant college.—*Rivers, Governor, et al. v. Atlanta Southern Dental College (Ga.)*, 1 S. E. (2d) 750.

Malpractice: Negligence in After-Care of Patient Following Childbirth.—The plaintiff gave birth to a baby Jan. 5, 1936, the defendant being the attending physician. For alleged negligence in failing properly to care for her following the birth of the baby and attributing her injuries to that negligence, the plaintiff sued the defendant. The trial court, after the plaintiff's evidence had been submitted and without hearing the physician's defense, dismissed the case, and the plaintiff appealed to the Supreme Court of Oregon.

The plaintiff submitted evidence tending to show that the defendant neither examined nor visited her following the birth of her baby until after she was removed, with his consent, from the maternity home on January 15, except that he did, on the day after delivery, stand in the doorway of her room and ask a nurse as to the welfare of the baby. By January 7 a puerperal infection had developed, but from what cause does not appear in the published report. Thereafter the patient's temperature remained elevated throughout her stay at the maternity home. Two days after the baby was born, the plaintiff's evidence showed, a nurse reported to the defendant that the plaintiff's temperature was 104 F. and requested him to see the plaintiff, which he did not do. The next day her temperature was 102 F. The plaintiff testified that on January 9 pus began to discharge from her vagina and the plaintiff's mother testified that, on January 11, she herself told the defendant that her daughter was not feeling as well as she should and desired him to visit her. A medical witness for the plaintiff who had examined her during the two months preceding the trial testified in answer to a hypothetical question that he did not think the defendant's treatment of the plaintiff during her stay at the maternity home constituted proper treatment and that if proper treatment had been given her condition probably could have been alleviated.

In the judgment of the court, the plaintiff made out a prima facie case that the defendant was negligent and that his negligence was the proximate cause of her injuries. Her suit should not therefore have been dismissed.

In remanding the case for further consideration, the Supreme Court pointed out that the defendant's defense had not been presented and expressly disclaimed any intention of discrediting or prejudicing that defense.—*Carter v. Howard (Ore.)*, 86 P. (2d) 451.

Society Proceedings

COMING MEETINGS

American Medical Association, New York, June 10-14. Dr. Olin West, 535 N. Dearborn St., Chicago, Secretary.

American Association for the Surgery of Trauma, Atlantic City, N. J., June 7-8. Dr. Ralph G. Carothers, 409 Broadway, Cincinnati, Secretary.

American Association for Thoracic Surgery, Cleveland, June 6-8. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.

American Association of Genito-Urinary Surgeons, Skytop, Pa., June 20-22. Dr. Charles C. Higgins, 2020 East 93d St., Cleveland, Secretary.

American Association of the History of Medicine, Atlantic City, N. J., May 4-5. Dr. Henry E. Sigerist, 1900 East Monument St., Baltimore, Secretary.

American Association on Mental Deficiency, Atlantic City, N. J., May 22-26. Dr. E. Arthur Whitney, Washington Road, Elynn, Pa., Secretary.

American Broncho-Esophagological Association, New York, June 5. Dr. Paul Holinger, 1150 N. State St., Chicago, Secretary.

American College of Chest Physicians, New York, June 8-10. Dr. Robert B. Homan Jr., P. O. Box 1069, El Paso, Texas, Secretary.

American College of Radiology, New York, June 12. Mr. M. F. Cahal, 540 North Michigan Blvd., Chicago, Executive Secretary.

American Gastro-Enterological Association, Atlantic City, N. J., June 10-11. Dr. Albert F. R. Andresen, 88 Sixth Ave., Brooklyn, N. Y., Secretary.

American Gynecological Society, Quebec, Canada, June 17-19. Dr. Richard W. TeLinde, 11 East Chase St., Baltimore, Secretary.

American Heart Association, New York, June 7-8. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.

American Laryngological Association, Rye, N. Y., May 27-29. Dr. C. J. Imperatori, 108 East 38th St., New York, Secretary.

American Laryngological, Rhinological and Otolological Society, New York, June 6-8. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.

American Medical Women's Association, New York, June 9-10. Dr. Elizabeth Parker, 1835 Eye St., Washington, D. C., Secretary.

American Neurological Association, Rye, N. Y., June 5-7. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.

American Orthopedic Association, Kansas City, Mo., May 6-9. Dr. Ralph K. Ghormley, 110 Second Ave. S.W., Rochester, Minn., Secretary.

American Otolological Society, Rye, N. Y., May 30-31. Dr. Isidore Friesner, 36 East 73d St., New York, Secretary Pro-Tem.

American Pediatric Society, Skytop, Pa., May 2-4. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.

American Proctological Society, Richmond, Va., June 9-11. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.

American Psychiatric Association, Cincinnati, May 20-24. Dr. Arthur H. Ruggles, 305 Blackstone Blvd., Providence, R. I., Secretary.

American Radium Society, New York, June 10-11. Dr. William E. Costlow, 1407 South Hope St., Los Angeles, Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 6. Dr. Eugene M. Landis, University of Virginia Hospital, Charlottesville, Va., Secretary.

American Society of Clinical Pathologists, New York, June 6-10. Dr. Alfred S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.

American Surgical Association, St. Louis, May 1-3. Dr. Charles G. Mixer, 319 Longwood Ave., Boston, Secretary.

American Therapeutic Society, New York, June 7-8. Dr. Oscar D. Hunter, 1835 Eye St. N.W., Washington, D. C., Secretary.

Association for the Study of Internal Secretions, New York, June 10-11. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.

Association of American Physicians, Atlantic City, N. J., May 7-8. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.

California Medical Association, Coronado, May 6-9. Dr. George H. Kress, 450 Sutter St., San Francisco, Secretary.

Connecticut State Medical Society, Hartford, May 22-23. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

Florida Medical Association, Tampa, Apr. 29-May 1. Dr. Shaler Richardson, 111 West Adams St., Jacksonville, Secretary.

Illinois State Medical Society, Peoria, May 21-23. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.

Iowa State Medical Society, Des Moines, May 1-3. Dr. R. L. Parker, 3510 Sixth Ave., Des Moines, Secretary.

Kansas Medical Society, Wichita, May 13-16. Mr. Clarence G. Munns, 112 West Sixth St., Topeka, Executive Secretary.

Massachusetts Medical Society, Boston, May 21-22. Dr. Alexander S. Begg, 8 Fenway, Boston, Secretary.

Mississippi State Medical Association, Jackson, May 14-16. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.

Missouri State Medical Association, Joplin, Apr. 30-May 1. Mr. E. H. Bartelsmeyer, 634 North Grand Blvd., St. Louis, Executive Secretary.

Montana, Medical Association of, Bozeman, June 18-20. Dr. Thomas F. Walker, 206 Medical Arts Building, Great Falls, Secretary.

National Gastroenterological Association, New York, June 4-6. Dr. G. Randolph Manning, Room 319, 1819 Broadway, New York, Secretary.

National Tuberculosis Association, Cleveland, June 3-6. Dr. Charles J. Hatfield, 50 West 50th St., New York, Secretary.

New Hampshire Medical Society, Manchester, May 14-15. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, June 4-6. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.

New Mexico Medical Society, Albuquerque, May 27-29. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, New York, May 6-9. Dr. Peter Irving, 2 East 103d St., New York, Secretary.

New York State Association of Public Health Laboratories, Rochester, May 20. Miss Mary B. Kirkbride, New Scotland Ave., Albany, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, May 13-15. Dr. T. W. M. Long, 321 Hamilton St., Roanoke Rapids, Secretary.

North Dakota State Medical Association, Minot, May 6-8. Dr. Albert W. Skelsey, 20½ North Broadway, Fargo, Secretary.

Ohio State Medical Association, Cincinnati, May 14-16. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.

Oklahoma State Medical Association, Tulsa, May 6-8. Dr. L. S. Willcutt, 210 Plaza Court Bldg., Oklahoma City, Secretary.

Rhode Island Medical Society, Providence, June 5-6. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.

Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., May 4. Dr. W. C. Spain, 116 East 53d St., New York, Secretary.

Society of Surgeons of New Jersey, Paterson, May 22. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.

South Carolina Medical Association, Charleston, Apr. 30-May 2. Dr. E. A. Hines, Seneca, Secretary.

South Dakota State Medical Association, Watertown, May 20-22. Dr. Clarence E. Sherwood, Madison, Secretary.

Texas, State Medical Association of, Dallas, May 13-16. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1930 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Digestive Diseases, Huntington, Ind.

7: 53-84 (Feb.) 1940

- Gastro-fleac Reflex: Further Experimental Observations. D. M. Douglas and F. C. Mann, Rochester, Minn.—p. 53.
Use of Hydrated Trisilicate of Magnesium for Peptic Ulcer. M. Kraemer, Newark, N. J., with technical assistance of B. Aaron, New York.—p. 57.
*Does Bran Produce Intestinal Obstruction? B. Fantus and G. G. Kopstein, Chicago.—p. 60.
Primary Ulcer of Jejunum. L. H. Berry and U. G. Dailey, Chicago.—p. 63.
Study of Liver Function in Experimental "Peptic" Ulcer. A. Reymont, Chicago.—p. 65.
Relation of Blood Carbon Dioxide and Dehydration to Gastric Acidity. F. W. Taylor and A. C. Michael, Indianapolis.—p. 67.
Early Diagnosis of Cancer of Pancreas. J. E. Dunphy, Boston.—p. 69.
Effect of Enteral Absorption of Fluids on Recovery of Blood Pressure After Severe Hemorrhage. E. J. Van Lier, D. W. Northup and P. E. Vaughan, Morgantown, W. Va.—p. 71.
Gastric Analyses and Gastric Symptoms in Diabetes Insipidus. H. Blotner, Boston.—p. 73.
Abnormal Mechanism for Excitation of Gastric Secretion in Dog. A. C. Ivy and W. H. Bachrach, Chicago.—p. 76.
Experimental Studies on Production of Peptic Ulcers by Vasomotor Alterations (Pitressin Episodes). M. Berg, Chicago.—p. 78.
*Clinical Notes on Use of Immunized Donors in Chronic Bacillary Dysentery. J. Felsen, New York.—p. 81.

Bran and Intestinal Obstruction.—Fantus and Kopstein reviewed the literature on bran impaction of the intestine and found only four cases of this type. In three the impaction was preceded by gross intestinal pathologic changes. The description of the fourth case (Davis) does not permit an adequate analysis as to its nature, but a predisposing cause was probably present. Therefore bran is obviously not prone to produce intestinal obstruction unless an organic predisposing cause is present. In the presence of intestinal ulceration, stenosis or disabling adhesions, its ingestion is contraindicated.

Blood from Immunized Donors for Bacillary Dysentery.—Felsen states that the blood of volunteers immunized with D-C vaccine (Bacillus dysenteriae, hemolytic and nonhemolytic Bacillus coli, enterococcus) has been found particularly beneficial to extremely sick patients who cannot respond to active immunization. Serologic and cultural studies indicate that a definite rise in agglutinins and bactericidal power occurs in both donor and recipient but that they do not persist for as long a period in the patient as when direct active immunization is carried out. In order to supplement this method of therapy, rabbits are being prepared in a similar manner. They will be bled only when needed in an emergency when the time element is an important factor. By keeping the blood titer high and collecting the serum only as required, it is hoped that the same general favorable response will be attained with rabbit serum as with unmodified human blood.

American Journal of Pathology, Boston

16: 1-102 (Jan.) 1940. Partial Index

- Experimental Infectious Angitis. M. C. Winternitz and P. M. LeCompte, New Haven, Conn.—p. 1.
Studies on Inflammation: XVIII. Mechanism of Leukocytosis with Inflammation. V. Menkin, Boston.—p. 13.
*Origin of Perineural Fibroblastoma. f. M. Tarlov, Brooklyn.—p. 33.
Wernicke's Disease: Identity of Lesions Produced Experimentally by B. Avitaminosis in Pigeons with Hemorrhagic Polioencephalitis Occurring in Chronic Alcoholism in Man. L. Alexander, Boston.—p. 61.
*Growth Disorder of Skull in Mongolism. C. E. Benda, Boston.—p. 71.

Origin of Perineural Fibroblastoma.—Tarlov believes that he is the first to demonstrate by direct staining methods that the type cell of two perineural fibroblastomas of the vagus nerve roots studied by him was not the Schwann cell type. Dockrill's modification of Hortega's silver impregnation

technic was the method employed for the demonstration of Schwann cells. Direct staining brought out normal and proliferating Schwann cells excluding the Schwann cell as the type cell of the encapsulated tumor of the peripheral nerves. The type cell of these tumors presented morphologic characteristics of the fibroblast. The term perineural fibroblastoma should be retained for these tumors although it must be realized that they may arise from endoneurium, as in the case of the tumors of the vagus nerve roots. Although the occurrence of nerve fibers within an encapsulated tumor of a peripheral nerve is usually characteristic of multiple neurofibromatosis, an occasional nerve fiber may occur within a solitary perineural fibroblastoma.

Growth Disorder of Skull in Mongolism.—To the two conditions cretinism and chondrodysplasia known to be associated with a marked shortening of the length of the base of the skull, Benda adds a third entity, mongolism, which his studies have proved to be associated with a failure of the development of the skull in length. In chondrodysplasia growth of the base of the skull is arrested because of lack of development of the cartilage, which is absorbed early and is replaced by ossified tissue. In cretinism growth of the bones of the skull is delayed because of lack of transformation of cartilage into bone. The cartilaginous spaces in cretinism are open much longer than normally. In mongolism the situation is much more complicated. Benda studied bones from eight cases of mongolism. These comprised the synchondrosis spheno-occipitalis from six cases, the synchondrosis spheno-ethmoidalis from two cases and vertebrae from six cases. There is a strong indication that the growth disorder in mongolism is due to the absence of agents which induce differentiation and growth. It is generally assumed that these factors are related in some way to the pituitary gland. Lauche expressed the opinion that the growth disorder in mongolism is the reverse of acromegaly. Studies of the pituitary gland led Benda to the conclusion that an insufficiency of the anterior lobe is responsible for the postnatal growth disorder in mongolism. Microscopic study demonstrates that proliferation of the epiphyseal cartilage is absent or insufficient. The growth disorder in mongolism is not restricted to the cartilaginous epiphyseal lines but involves also the membranous bones. An analysis of the observations suggests that the development of the growth disorder known as mongoloid deficiency appears to be dependent on a congenital absence or deficiency of those agents which, either from hypophyseal or from extrahypophyseal sources, stimulate differentiation and growth.

American Journal of Psychiatry, New York

96: 771-1008 (Jan.) 1940. Partial Index

- Biochemistry of Epilepsy: Review. H. Goldstein and R. A. McFarland, New York.—p. 771.
Evaluation of Electro-Encephalograms of Schizophrenic Patients. P. A. Davis, Boston.—p. 851.
Electro-Encephalography in the Psychoses: Localization of Cerebral Atrophy. M. A. Rubin, Worcester, Mass.—p. 861.
*Five to Ten Year Follow-Up Study of 641 Schizophrenic Cases. C. Rupp and Elizabeth K. Fletcher, Howard, R. I.—p. 877.
Relationship Between Early Schizophrenia and Neuroses. W. R. Miller, Iowa City.—p. 889.
Psychotic Manifestations in Presence of Acute Cerebral Vascular Lesions. C. W. Irish, Los Angeles.—p. 897.
Effect of Treatment of Depression in Menopause with Estrogenic Hormone. H. S. Ripley, E. Shorr and G. N. Papanicolaou, New York.—p. 905.
Detoxication of Sodium Benzoate in Neuropsychiatric Disorders: Excretion of Hippuric Acid After Ingestion of Sodium Benzoate. I. Finkelman, Chicago; J. Hora, Elgin, Ill.; I. C. Sherman, Chicago, and M. K. Horvitt, Elgin, Ill.—p. 951.
*Observation on Treatment of Mental Cases with Subshock Doses of Insulin. C. R. Bennett and T. K. Miller, Camarillo, Calif.—p. 961.
*Therapeutic Quartan Malaria in Treatment of Neurosyphilis Among Negroes: Progress Report. G. C. Branche, Tuskegee, Ala.—p. 967.

Long-Time Follow-Up of Schizophrenic Patients.—In their follow-up study of 641 patients diagnosed as having schizophrenia, Rupp and Fletcher present the long-time prognosis of patients not receiving specific (pharmacologic) treatment. As the cases represent first admissions to the Rhode Island State Hospital for Mental Diseases between 1929 and 1934, at least four and a half years had elapsed between admission and follow-up. An attempt to secure adequate information regarding the present status (as of June 1, 1939) of the 641 patients was made. Personal examination of 394 patients

nosed not only by the neurologist and orthopedist but by the general practitioner. They believe that intervertebral fibrocartilaginous disks protrude posteriorly into the spinal canal as the result of unusual stress or strain applied to the vertebral column as the result of a single injury or of repeated injuries of varying degrees of severity. In an analysis of 500 consecutive cases in which operation was performed at the Mayo Clinic, 58 per cent of the patients gave a history of a specific injury to the back. Most of these persons had not connected their complaint of backache or sciatic pain with the injury. This is true particularly if there has been a long interim of freedom from pain. A history of intermittence of symptoms was given by 84 per cent. To what this intermittence is due is not known. It serves as a useful criterion in distinguishing between root pain caused by a protruded disk and that caused by an intraspinal neoplasm, which usually is marked by definite progression of symptoms and signs. Protrusion of any intervertebral disk may occur, but it seems to occur more frequently in the lumbar region. In 96 per cent of the 500 cases there were lumbar protrusions. This is an important diagnostic fact, as no lesion can assume much size in the cervical and thoracic regions of the spinal canal without interrupting some nerve pathway, thus calling attention to a compressive lesion; but in the lumbar region a mass may be large before the conduction system is involved. The three neurologic signs which continue to be most helpful in the diagnosis of protrusion of a lumbar disk are Lasègue's sign (positive in 84 per cent of cases), sciatic tenderness (present in 64 per cent) and diminution or absence of the achilles reflex on the side of the pain (60 per cent). The authors are gratified with the results reported by their 500 patients, most of whom had suffered for many years from intractable backache and sciatic pain. There have been only two hospital deaths in the entire series in which operation was performed. Five recurrences were encountered. The authors believe that if there is a recurrence of symptoms due to a protruded intervertebral disk it is most likely due to further protrusion at the site of the original protrusion. Such was the case in the five recurrences.

Delaware State Medical Journal, Wilmington

12: 19-38 (Feb.) 1940

- Difficulties in Early Diagnosis of Primary Cancer of Lung. J. T. Bauer, Philadelphia.—p. 19.
Allergy and Its Relationship to Dermatology. J. Miller, Philadelphia.—p. 26.

Journal of Immunology, Baltimore

38: 81-158 (Feb.) 1940

- Studies on Relationship of Sex Hormones to Infection: III. Quantitative Study of Increased Resistance to Vaccinal Infection Produced by Estrogenic Hormone and Pseudopregnancy. D. H. Sprunt and Sara McDearman, Durham, N. C.—p. 81.
Spermatozoal Antibodies and Fertility: I. Attempt to Induce Temporary Sterility in Female White Mice by Passive Immunization with Spermatozoal Antiserums. W. Henle, Gertrude Henle, C. F. Church and Claire Foster, Philadelphia.—p. 97.
Id.: II. Attempt to Induce Temporary Sterility in Female Guinea Pigs by Active Immunization Against Spermatozoa. W. Henle and Gertrude Henle, Philadelphia.—p. 105.
*Vaccination of Man Against Virus of Equine Encephalomyelitis (Eastern and Western Strains). J. W. Beard, Dorothy Beard and H. Finkelstein, Durham, N. C.—p. 117.
Effects of Injection of Glucose on Experimental Staphylococcal Infection in Mice. I. A. Parfentjev and S. W. Collins Jr., with technical assistance of Margaret Cross, Pearl River, N. Y.—p. 137.
Time Factor in Solubility of Precipitates in Excess of Antigen. W. C. Boyd, Boston.—p. 143.
Construction of Graphs and Tables for Evaluation of Quantitative Complement Fixation Reactions and Reaction Ratios. W. R. Thompson and F. Maltaner, Albany, N. Y.—p. 147.

Vaccination Against Equine Encephalomyelitis Virus.

—The Beards and Finkelstein used formalized chick embryo vaccines, effective in horses and other animals, in 100 men and women. The serums of twenty-five were examined before vaccination for the presence of neutralizing antibodies. A single "bivalent" vaccine prepared in a batch of more than 30 liters in the routine way for use in horses was used. It was chosen on the basis of the high titer of virus in the tissue before formalization and its high protective action for guinea pigs. Most of the individuals vaccinated had worked with virus or with virus-diseased animals. Only a few had no history of contact with the virus or the disease. Reactions to the vaccine were variable. Superficial introduction of 1 cc. of material into the deltoid muscle led to immediate smarting and dull

pain followed by continuous pain, tenderness, discoloration and slight swelling. Injection of 1 cc. of vaccine at a depth of from 1 to 1½ inches in the gluteal muscle, well away from the sciatic nerve, was followed, usually within a few minutes, by dull, sometimes intense, pain that diminished and disappeared within half an hour. The general impression gained was that, though the procedure was disagreeable, the local results were temporary and inconsequential. General reactions were experienced by a few. Weakness, slight nausea and cramping in both lower extremities for the first day were experienced infrequently by the women. Only one man complained of more than temporary pain. The results of the serum studies showed a high response in the production of neutralizing antibodies. Response to the Eastern strain antigen appeared in some instances within seven days after the first injection, while that to the Western strain was pronounced within this period. In all cases except one, the final neutralizing titer of the serums after twenty-one days for the Eastern strain was between 100 and 10,000 mouse infectious units, and similar titers with no exceptions were observed with the Western strain. With the Eastern strain the content of antibodies was nearly as high after fourteen as after twenty-one days. A more rapid and definite response to Western strain antigen was shown by the high neutralizing titer developing in seven days. A single dose of 1 cc. seemed to be as effective as larger amounts. The presence of neutralizing antibodies in certain of the serums before vaccination has been interpreted as due to previous subclinical infections with one or the other or both strains of virus. The presence of antibodies against one strain did not interfere with the response to the antigen of the other strain. The antibody titer present before vaccination was greatly increased by the vaccine. In no instance was there evidence of decrease. The results demonstrate that vaccination of people frequently exposed to the virus in the laboratory and in the field is indicated.

Journal Industrial Hygiene & Toxicology, Baltimore

22: 89-110 (March) 1940

- Determination of Thoron Content of Air and Its Bearing on Lung Cancer Hazards in Industry. R. D. Evans and C. Goodman, Cambridge, Mass.—p. 89.
Age and Lead Content of Certain Human Bones: Compilation and Statistical Analysis of Recently Published Data. H. P. Morris, Washington, D. C.—p. 100.
Experimental Radiologic Observations on Action of Electrical Current on Respiratory and Circulatory Organs: I. Respiratory Organs. A. W. Greenberg, Leningrad, Soviet Union.—p. 104.

Kentucky Medical Journal, Bowling Green

38: 95-138 (March) 1940

- Carcinoma of Colon. D. P. Hall, Louisville.—p. 96.
Modern Therapy of Common Blood Stream Infections. H. E. Richey, Louisville.—p. 102.
Relations of Ocular Conditions to General Practice. D. L. Salmon, Madisonville.—p. 110.
Cancer of Breast: Description of Rodman Operation. D. Guthrie, Sayre, Pa.—p. 113.
Syphilis Control in Kentucky by Means of a Mechanical System of Morbidity Reporting. J. R. Pate, Louisville.—p. 121.
Management of Skin Cancer. J. Love, Louisville.—p. 126.

Michigan State Medical Society Journal, Lansing

39: 77-156 (Feb.) 1940

- Breast Cancer: Surgical Treatment. B. R. Shorc, New York.—p. 93.
Syphilis in Industry. G. Van Rhee, Detroit.—p. 98.
Otolaryngology: Some Practical Points in Diagnosis and Treatment. H. M. Goodyear, Cincinnati.—p. 101.
Improved Needle for the Injection of Internal Hemorrhoids. C. L. A. Odén, Muskegon.—p. 104.
Pyuria: Its Diagnostic Significance. B. C. Corbus, Evanston, Ill.—p. 105.
Endocrinology: Its Application to Human Needs. J. R. Goodall, Montreal.—p. 109.
Schizophrenia: Neurologic Signs. W. A. Muchlig, Ann Arbor.—p. 116.

Nebraska State Medical Journal, Lincoln

25: 81-120 (March) 1940

- Observation from 1½ to 5 Years Following Anterior Pituitary-like Sex-Hormone (Antuitrin S) Therapy. R. L. Schaefer and D. K. Kitchen, Detroit.—p. 81.
Brief Analysis of Maternal Mortality in Nebraska 1928-1937. R. H. Loder, Lincoln.—p. 86.
Panel Discussion on Sulfanilamide and Its Derivatives. L. T. Hall, M. F. Gunderson, Helen Wyandt, E. Davis, W. H. Stokes, D. Findley and D. Judd, Omaha.—p. 89.
Reevaluation of Our Knowledge of Intracranial Hemorrhage of the Newborn. H. M. Jahr, Omaha.—p. 109.

New England Journal of Medicine, Boston

222: 289-334 (Feb. 22) 1940

- *Subphrenic Abscess: Report of 111 Consecutive Operative Cases. H. H. Faxon, Boston.—p. 289.
Heberden's Nodes: Incidence of Hypertrophic Arthritis of Fingers. R. M. Stecher, Cleveland.—p. 300.
Delinquency. D. A. Thom, Boston.—p. 308.
The Vitamins. A. P. Meiklejohn, Boston.—p. 313.

Subphrenic Abscess.—According to Faxon from 1900 to 1938 a diagnosis of an infectious subphrenic process has been made in 175 cases at the Massachusetts General Hospital. In twenty-two, undrained abscesses were discovered at necropsy. Spontaneous drainage was encountered in four. In thirty-two the clinical course, physical signs and x-ray evidence suggested a mild irritative process beneath the diaphragm. All these patients recovered without surgical operation. Six patients, on whom operation was performed but without pus being encountered, were presumably suffering from a similar nonsuppurative type of lesion. The age incidence and sex distribution in the 111 surgically treated cases indicate an increase in the incidence of subphrenic abscess from the first to the fifth decade of life and that it is more frequent in men (68 per cent) than in women. Although a certain number of subphrenic infections gain access to the subdiaphragmatic area by way of the lymphatics and the blood stream, the vast majority originate from an extension of intraperitoneal sepsis. Infection originating in the appendix is the commonest source of subphrenic abscess formation. Second in importance as the primary source of infection were lesions of the stomach and the duodenum, while those in the liver and bile passages ranked third. The presence of a subphrenic abscess should be suspected in any case in which a persistent unexplained fever is associated with a history of recent intraperitoneal sepsis. In 87 per cent of the reviewed cases the abscesses were on the right side, with the right posteriosuperior space most frequently involved. It is at times difficult to elicit convincing evidence from pressure over the twelfth rib posteriorly or the lower costal margin anteriorly in the early stages of development of an abscess. Repeated examinations will eventually show tenderness to be present over an involved space in practically every case. Granted the diagnosis of a collection of pus beneath the diaphragm, there is complete unanimity of opinion that the treatment lies in prompt drainage of the area. Faxon believes that the transthoracic approach increases the risk of contamination of the pleural cavity inherent in this type of drainage. The advocates of the retroperitoneal type of approach contend that this method at a single operative step gives the abscess adequate dependent drainage with the smallest chance of contaminating uninvolved surfaces. The author argues that both the theoretical and the statistical evidence favor the retroperitoneal type of operation as the procedure of choice. Contamination of the pleural or peritoneal cavities at the time of operation more than doubles the mortality rate. Contamination of the pleural or peritoneal cavities occurs far more frequently with the transthoracic and transperitoneal types of approach than it does with the retroperitoneal operation.

North Carolina Medical Journal, Winston-Salem

1: 65-124 (Feb.) 1940

- The Making of a Clinician. D. Riesman, Philadelphia.—p. 65.
Vaginal Ureterolithotomy: Review of Reported Cases. D. B. Cobb, Goldsboro.—p. 70.
Ainhum Treated by Lumbar Sympathetic Ganglionectomy: Case. Complete Bibliography. R. B. McKnight, Charlotte.—p. 76.
*Cod Liver Oil Treatment of Burns and Wounds. P. C. Hardin, Monroe.—p. 82.
Malaria Studies and Investigations in North Carolina. C. M. White, Raleigh, and L. L. Parks, Tarboro.—p. 92.
*Low Back Pain and Sciatica, with Special Reference to Rupture of Intervertebral Disk. B. Woodhall, R. B. Raney and W. W. Vaughan, Durham.—p. 94.
Relationship of Gynecology and Urology. E. V. Benbow, Winston-Salem.—p. 101.
Present Day Diagnosis and Treatment of Chancroidal Infection. W. L. Thomas, Durham.—p. 104.
Role of Pectin in Diarrhea. G. W. Kutscher Jr., Asheville.—p. 107.

Cod Liver Oil for Burns and Wounds.—Hardin reports the results of cod liver oil ointment therapy in seventy-five selected clean and infected wounds and nine fresh major burns. He states that as a rule more tissue is saved, infection is better controlled, tissue regeneration is accelerated, less scarring

occurs, pain is more completely eliminated, hospitalization is made shorter, and a better functional result is achieved by the use of cod liver oil-petrolatum ointment than with other methods of therapy. The disadvantages are few and relatively unimportant. In treating extensive burns or ulcerations, large amounts of the ointment are needed and the expense is considerable. But the additional cost is more than compensated by the more rapid healing and quicker return to health. The disagreeable odor of fish oil, though occasionally objectionable, has not proved seriously unpleasant to the patient. This is easily controlled by sprinkling a few drops of turpentine on the dressings. Rancidity seldom occurs, since the ointment is self sterilizing and even rancid oil does not harm the wound. No ill effects have been reported from hypervitaminosis. Irritation and maceration of the skin do not occur.

Low Back Pain, Sciatica and Rupture of Intervertebral Disk.—Woodhall and his associates point out that the numerically small group of individuals with complaints of low back pain and sciatica in whom orthopedic disturbances cannot be demonstrated and in whom the usual methods of treatment are ineffectual includes patients with actual compression of the roots of the cauda equina from a ruptured intervertebral disk, hypertrophy of the ligamentum flavum, tumor of the cauda equina, arachnoiditis, intrinsic lesion of the cauda equina (radiculitis caused by trauma, infection or a chemical agent) and malingerers or patients who have developed a traumatic psychosis with their somatic complaint referred to the lumbar spine. The authors record their experience with thirty-nine cases belonging to this group in which x-ray studies with iodized poppyseed oil as the opaque medium were done. In twenty-five the clinical syndrome of a ruptured intervertebral disk was recognized and treated as such.

Oklahoma State Medical Assn. Journal, Oklahoma City

33: 1-58 (Feb.) 1940

- Petrositis. T. G. Wails, Oklahoma City.—p. 1.
Gout (Metabolic Arthritis). E. Goldfain, Oklahoma City.—p. 3.
Chemotherapy of Infectious Diseases. L. F. Barker, Baltimore.—p. 6.
Diagnosis and Treatment of Acute Intestinal Obstruction. G. E. Stanbro, Oklahoma City.—p. 11.
Technic of Refraction. H. F. Vandever, Enid.—p. 15.

Southern Surgeon, Atlanta, Ga.

9: 75-148 (Feb.) 1940

- Factors Influencing Mortality of Perforated Peptic Ulcer. T. C. Davison and F. F. Rudder, Atlanta, Ga.—p. 75.
*Operation for Relief of Epilepsy Following Certain Traumatic and Inflammatory Lesions of Brain. J. M. Meredith, University, Va.—p. 86.
Factors in Mortality of Thyroid Disease in Nonendemic Area: Analysis of 817 Consecutive Surgical Cases and 103 Consecutive Surgical and Nonsurgical Deaths, with Note on Value of Quick Test of Liver Function in Estimation of Hepatic Damage. F. F. Boyce, New Orleans.—p. 96.
Primary Ovarian Pregnancy: Review of Literature and Case Report. P. B. Russell Jr. and W. T. Black Jr., Memphis, Tenn.—p. 114.
Bone Tumors. G. W. Jones, Hines, Ill.—p. 122.

Surgical Relief for Epilepsy Following Trauma.—Meredith devised an operation for the relief of epilepsy which follows cerebral trauma resulting in obliteration of the basilar cisterns. The requirements for success are (1) that a definite internal (communicating) hydrocephalus be present (as demonstrated by encephalography) with (2) little or no air in the subarachnoid spaces overlying the cerebral hemispheres or in the basilar cisterns. The operation consists of a transcranial incision and large stoma formation into the lateral ventricle through a relatively unimportant portion of the less dominant cerebral hemisphere, together with excision of the choroid plexus in that ventricle; this results in short circuiting of the fluid around the obstructed basilar cisterns and a reduction in the total amount of fluid formed. Convulsions have not recurred up to twenty-three months after operation in the author's case, although phenobarbital and other anticonvulsive drugs were discontinued one year after operation. Before the surgical operation the patient was having several severe convulsions every month, in spite of dehydration and phenobarbital therapy. The author states that an encephalographic picture, as in his case, is occasionally seen in cases of epilepsy either post-traumatically or after an inflammatory lesion of the brain. He urges that further use be made of the operative procedure described in an effort to combat the devastating effects of convulsive disorders.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

21:1-66 (Feb.) 1940

- Quantitative Investigation of Precipitin Reactions of Proteins Treated with Phenylisocyanate and Formaldehyde. A. Kleczkowski.—p. 1.
Chemotherapeutic Experiments on Pleuropneumonia-like Organisms in Rodents. G. M. Findlay, R. D. Mackenzie and F. O. MacCallum.—p. 13.
New Blood Test and Its Application to Microdetermination of Hemoglobin. J. F. Barrett.—p. 22.
Nutrition of *Streptococcus Haemolyticus*: Growth in Chemically Defined Mixture, Need for Vitamin B₆. H. McIlwain.—p. 25.
Mode of Action of Sulfanilamide, with Special Reference to Bacterial Growth Stimulating Factor (P Factor) Obtained from *Brucella Abortus* and Other Bacteria. H. N. Green.—p. 38.
Augmentation of Action of Anthracite and Other Dusts by Dead Tubercle Bacilli. S. L. Cummins.—p. 64.

British Journal of Tuberculosis, London

34:1-48 (Jan.) 1940

- Tuberculosis Association of India. C. Frimodt-Møller.—p. 5.
*Internal Pneumonolysis: Report on 200 Cases. F. L. Wollaston.—p. 13.
Choice of Partial Collapse Operations in Pulmonary Tuberculosis. A. L. D'Abreu.—p. 27.
Thrombosis of Superior Vena Cava. E. M. Buzzard.—p. 39.

Internal Pneumonolysis.—Wollaston presents an analysis of 200 cases in which internal pneumonolysis was done as a routine part of the treatment of pulmonary tuberculosis by artificial pneumothorax. The object was to obtain a satisfactory collapse with either a selective roentgenologic collapse giving complete relaxation to the diseased area of the lung or a complete collapse when this was indicated by the extent of the disease. In assessing the value of operation, the classification of Hjalsted and Törning has been followed, with slight modification, the degree of collapse being indicated by A and B. A1 included all cases in which the lung was free to the level of the aortic knuckle and in which either selective or complete collapse was maintained; A2 included the cases in which a strip of lung was adherent along the mediastinum up to, but not extending over, the dome of the pleura, and in which the collapse of the lung was selective or complete; B1 included cases in which the apex remained adherent to the dome of the chest but the collapse was otherwise clinically and roentgenologically satisfactory and no cavity was visible, while B2 included all cases in which the cavity remained or lateral adhesions were still present. Before operation all cases came into group B, the majority presenting a cavity and positive sputum (B2). On discharge, 86 per cent were classified in group A. Thus 80 per cent of these patients should be alive and well, according to Hjalsted and Törning, five years after the termination of their pneumothorax, whereas if no operation had been performed 80 per cent would have been dead. Comparing all pneumothorax patients discharged in 1934, none of whom had had their adhesions divided, with all patients discharged in 1938, it was found that in 1934 there were seventeen (25.8 per cent) selective collapse cases, while in 1938 there were fifty (58.8 per cent). Of the cases under review, there was a positive sputum before operation in 157 and in only twenty on discharge. In the author's opinion the optimal time for dividing adhesions is from six to eight weeks after the induction of the pneumothorax. Of the 200 cases an A1 collapse was obtained in 118, an A2 collapse in fifty-four, a B1 in twenty and a B2 in eight. Of 185 cases presenting a cavity before the operation only nineteen presented a cavity on discharge. The author believes that by not making use of all the means at one's disposal the fullest benefit from pneumothorax cannot be expected. Once it has been decided that pneumothorax is the best treatment in a case, selective collapse and relaxation of the diseased area of the lung should be aimed at until it has been proved unattainable. Since adhesions may cause trouble when the artificial pneumothorax is abandoned, they should be divided unless the division is so difficult as to become dangerous. When symptoms of incomplete collapse are present, the division of adhesions becomes essential as being the only alternative to the abandonment of the artificial pneumothorax and the undertaking of other and more drastic forms of collapse therapy. Selective collapse can be attained in a reasonable proportion of cases, with a minimum

of danger and discomfort to the patient and with no greater incidence of pleural effusion and empyema than that expected to occur in pneumothorax cases. The value of complete or selective collapse is such that every adhesion should be divided, provided it can be done with reasonable safety.

Indian Medical Gazette, Calcutta

74:719-782 (Dec.) 1939. Partial Index

- Further Observations on Protamine Zinc Insulin in Clinical Diabetes. J. P. Bose.—p. 719.
*Naphthalene Poisoning. N. R. Konar, H. K. Roy and M. N. De.—p. 723.
Cardiovascular Syphilis and Cerebral Symptoms. P. G. Gollerkeri.—p. 725.
Yaws in Chitra Subdivision of Hazaribagh District, Chotanagpur. G. N. Sinha.—p. 728.
Outbreak of Epidemic Dropsy in a Closed Community. C. L. Pasricha, S. Lal, K. S. Malik and P. K. Biswas.—p. 733.
Aschheim-Zondek and Friedman Tests in Diagnosis of the Life and Death of a Fetus. C. L. Pasricha, S. Lal and K. Banerjee.—p. 736.
Simple Technic of Giving Intravenous Quinine with Saline. R. K. De.—p. 740.

Naphthalene Poisoning.—Konar and his colleagues report the second case of naphthalene poisoning to occur in India. The remarkable features of the case were deepening coma, severe jaundice, fever, rapidly developing anemia, hyperthermia and patchy hepatic necrosis, as revealed by the necropsy. Such features have not been frequently noticed in the previously reported cases. The authors have found no mention of hyperthermia, hemiplegia and marked anemia in the previously recorded cases. The marked degree of anemia which developed so rapidly (death occurred three days after the ingestion of the naphthalene) was possibly due to acute hemolysis, although in this case there was no hemoglobinuria. This hemolysis enhanced the jaundice primarily caused by hepatic necrosis. Hyperthermia might be explained by the cholemia consequent to hepatic necrosis, like the hyperthermia encountered in cases of acute yellow atrophy of the liver. It is also possible that, in the metabolism of naphthalene, naphthylamine (an amino derivative) was formed and was responsible for the fever. Naphthylamine has been used by laboratory workers for producing experimental hyperthermia.

Lancet, London

1:303-348 (Feb. 17) 1940

- Frostbite and Trench Foot. R. Greene.—p. 303.
Rickettsia Diseases of Malaya: Identity of *Tsutsugamushi* and Rural Typhus. R. Lewthwaite and S. R. Savor.—p. 305.
*Treatment of Pneumonia with Sulfapyridine, With and Without Specific Serum. C. S. D. Don, R. W. Luxton, H. R. Donald, W. A. Ramsay, D. W. Macartney, G. S. Smith and C. H. Addeley.—p. 311.
Hyperventilation Syndrome. W. Sargent.—p. 314.
Hematemesis and the War. G. Melton.—p. 316.

Treatment of Pneumonia with Sulfapyridine.—Don and his co-workers report a controlled investigation of cases of lobar pneumonia admitted to Crumpsall Hospital, Manchester, making full use of x-ray and laboratory facilities. All pneumonia cases have been included irrespective of the condition on admission or the stage of the disease. The first and every subsequent third case were treated as controls. Every alternate type I case was treated with sulfapyridine alone and every other type I case (other than controls) with the drug plus the specific serum. Similarly, apart from controls, every alternate type II case was treated with sulfapyridine alone and every other type II case with the drug plus the specific serum. All other types, except controls, were treated with sulfapyridine alone. The patients were nursed in special wards, receiving the same nursing attention and the ordinary pneumonia routine: antiphlogistine, expectorant mixtures, sedatives and stimulants. Of the 234 cases of lobar pneumonia treated, seventy-eight were controls giving twenty-one deaths; 119 were treated with sulfapyridine alone, giving a case mortality of 6.7 per cent, and thirty-seven cases of either type I or type II treated with sulfapyridine plus specific serum, with three deaths. The case mortality of patients aged 55 or over was more than halved by treatment with sulfapyridine, and a similar reduction was noted in the smaller number of type III cases. The authors were impressed by the favorable outlook in type I and type II pneumonias treated with sulfapyridine alone, one death taking place in forty-nine cases. The case mortality in type I and type II was slightly better in the cases treated with sulfapyridine alone than in those treated

with the drug plus serum, but in view of the comparatively small numbers it was felt inadvisable to draw conclusions. Of fifteen control patients with positive blood cultures (and type of pneumococcus) nine died, whereas of sixteen patients with positive blood cultures treated with sulfapyridine only four died. A striking feature was the considerably reduced case mortality in type I and type II with positive blood cultures, as compared with similar control cases, of patients treated with sulfapyridine alone and with sulfapyridine plus serum. Complications were fewer among the patients treated with sulfapyridine and in those given the drug plus serum than in the controls.

Practitioner, London

144: 109-212 (Feb.) 1940

- Treatment of Simple Goiter. T. G. Moorhead.—p. 109.
Medical Treatment of Thyrotoxicosis. C. Bramwell.—p. 117.
Surgical Treatment of Toxic Goiter. C. A. Joll.—p. 124.
Tumors of Adrenal Gland. L. R. Broster.—p. 135.
The Pituitary Gland. E. P. Sharpey-Schafer.—p. 143.
Use of Male Sex Hormone in Treatment. P. M. F. Bishop.—p. 150.
Disorders of Female Sex Glands and Their Treatment. A. J. Wrigley.—p. 156.
War Time Diseases of Skin. H. MacCormac.—p. 165.
Some Ophthalmic Problems in War Time. Ida Mann.—p. 174.
Points of Prognostic Value in Bronchial Asthma. E. M. Fraenkel.—p. 181.
Modern Therapeutics: VIII. Sedatives and Analgesics. W. J. Dilling.—p. 189.

Quarterly Journal of Medicine, Oxford

9: 1-128 (Jan.) 1940

- Tubero Sclerosis, Rheostosis and Neurofibromatosis. G. S. Hall.—p. 1.
Intravenous Dextrose Tolerance Test. R. E. Tunbridge and E. C. Allibone.—p. 11.
Acute Nephritis in Childhood, with Special Reference to Diagnosis of Focal Nephritis. W. W. Payne and R. S. Illingworth.—p. 37.
Atypical Manifestations of Leukemia. M. M. Wintrobe and D. M. Mitchell.—p. 67.
Renal Changes in Alkalosis. B. M. Nicol.—p. 91.
Serum Choline Esterase in Jaundice and Diseases of Liver. B. McArdle.—p. 107.

Acute Nephritis in Childhood.—Payne and Illingworth observed 301 cases of nephritis in children in the acute and sixty-four in subsequent stages. As edema is usually accepted as the chief distinguishing feature of the acute stage, the cases were divided into three groups: no edema, no edema other than puffiness of the eyelids and definite edema. No difference between the three groups could be found to lie in the etiologic factors, age and sex incidence or causative infection. In symptomatology there was no appreciable difference between the groups. The incidence of vomiting, abdominal pain and frequency was high. Many children had no symptoms. In the majority of cases it was not possible to estimate the time interval between infection and nephritis, but in those few in which it was possible there was no difference in the three groups. The edematous cases commence at the height of the infection quite as frequently as the nonedematous. There appeared to be no difference in the frequency with which nitrogen retention occurs in any of the three groups. The rise in blood urea in the majority of cases was transient. It is suggested that hypertension and oliguria in the acute stage are not of value in distinguishing the two types of nephritis. The occurrence of exacerbation of the nephritis as the result of tonsillectomy was of no diagnostic value. The prognosis in the three groups was equally serious, the majority being in the latent stage when reexamined from one to twelve years after the acute attack. A high incidence of hypertension in the latent stage, in some cases in the absence of urinary abnormality, was observed. The incidence of this hypertension increased markedly with the duration of the disease. Having found that the presence or absence of edema is a useless criterion for the distinction of the two types, the authors applied other criteria used for the diagnosis of focal nephritis and found that they were similarly useless for distinguishing the two types of the disease. They conclude that acute focal nephritis is not a clinical entity.

Serum Choline Esterase in Jaundice and Diseases of Liver.—McArdle recognized a relationship between low choline esterase readings and liver disease in 270 subjects. At the same time no clinical signs or symptoms that could be attributed to a fall in the activity of the enzyme have been observed, and the

association remains unexplained. The author continued the investigation hoping that the estimation might prove of value in the differentiation of toxic and obstructive jaundice and as a test of liver function. The method used was that of Jones and Tod (1935). In forty normal adults the range of choline esterase in the serum was from 51 to 121 units, with a mean of 78 units. For twenty children (from 7 to 15 years old) the values varied from 71 to 166 units, the mean being 105 units. In diseases of the liver the values were much lower. Of the seventy-one cases examined, the values of 79 per cent were below 50 units, the range being from 10 to 70 and the mean 36 units. This difference from normal adults is statistically significant. Eighty-two patients with miscellaneous diseases had esterase values between 13 and 138, with a mean of 71 units. Twenty had values below 50 units, and in many of them there were strong clinical indications of hepatic damage. The initial figure for choline esterase was 50 units or above in twenty-one (87.5 per cent) of the twenty-four instances of obstructive jaundice, while in jaundice of hepatic origin it was below 50 units in thirty-three (87 per cent) of the thirty-eight cases. Improvement or impairment of hepatic function was accompanied by a rise or fall respectively in choline esterase. The author suggests that the determination of the choline esterase in the serum might be employed usefully as a measure of hepatic function and as a test in differentiating jaundice of hepatic and obstructive origin. A value below 50 units indicates that the liver is damaged. Normal figures in hyperthyroidism and possibly in diabetes may not necessarily mean a healthy liver. The test compares favorably with other tests used in the diagnosis of jaundice and disease of the liver. As with all other functional tests, it is likely to be of most value when used in conjunction with clinical observations.

Tohoku Journal of Experimental Medicine, Sendai

37: 373-490 (Jan.) 1940. Partial Index

- Toxicity of Milk of Pregnant Mothers and Its Arakawa's Reaction. M. Yamagishi and S. Sato.—p. 373.
Relation of Diastase Content in Mother's Urine and Arakawa's Reaction of Mother's Milk. S. Sato.—p. 392.
Change of Number and Size of Blood Platelets in Breast Fed Infants and Intensity of Arakawa's Reaction of Their Mothers on Vitamin B Administration. M. Shindo.—p. 410.
Studies on Types of Tubercle Bacilli Cultured from Tuberculous Kidneys. C. Suzuki.—p. 425.
Mechanism of Cathartic Action of Calomel. S. Kawada.—p. 466.

Types of Bacilli in Tuberculous Kidneys.—Suzuki attempted to investigate the question of chronic renal tuberculosis with its diversity in the clinical course and its varying anatomic changes in the renal parenchyma, always being caused by the same type of tubercle bacillus, the human type, the possibility of the bovine type and the gallinaceous type concurring with the human type, as they do in other forms of tuberculosis, and the variability in the virulence of the human type of tubercle bacillus. He cultured tubercle bacilli from the pus of 101 tuberculous kidneys, using the Petraghani medium and 4 per cent glycerin bouillon. The growth was always rapid and eugonic and no essential difference could be seen between the strains. In inoculation tests on guinea pigs, the 101 strains of tubercle bacilli showed a considerable pathogenicity. The animals all died as the result of a generalized tuberculosis. However, inoculation of the 101 strains of tubercle bacilli into rabbits, which were observed for three months, never resulted in a death from generalized tuberculosis. A small number of strains produced only a local process at the site of inoculation, but in the majority of rabbits there developed in addition to the local process at the site of inoculation a mild or severe tuberculous process in the lungs and occasionally also in the liver and kidneys. Strains cultured from tuberculous processes at the apex of the papilla or from the terminal stage of the caseocavernous form had a comparatively low pathogenicity in rabbits, but strains from the florid stages of caseocavernous renal tuberculosis, from tuberculous pyonephrosis and particularly those from the coarse nodular form showed a high pathogenicity in rabbits. The author's own method of agglutinary differentiation between the human and bovine types of tubercle bacilli revealed that the 101 strains obtained from tuberculous kidneys belonged to the human type.

Brussels-Médical, Paris

20: 427-447 (Jan. 28) 1940

National Homage of Royal Academy of Medicine of Belgium to Prof. C. Heymans.—p. 427.

*Hematologic Control of Intoxications by Volatile Hydrocarbons. A. Langelez, G. Peremans and H. Bastenier.—p. 430.

Intoxications by Volatile Hydrocarbons.—Langelez and his associates point out that the increasing use of volatile hydrocarbons for various industrial purposes has led to the manifestation of numerous cases of poisoning. They review the cases that have been observed in Belgium during the years 1932-1938. Eleven of these terminated in death, while in sixteen disablement of several years' duration was the result. Nearly all these cases have been attributed to the action of "benzol," a term which the authors restrict to a product obtained by distillation of coal, in contradistinction to benzine, a distillate from petroleum. In addition to subjective and objective symptoms of "benzolism" the intoxication causes especially blood changes. 1. There are cases characterized by alterations of the aplastic type involving in various degree the diverse elements of the blood (erythrocytes, myeloid and lymphoid leukocytes and the thrombocytes). All the elements of the red blood are diminished and neutropenia exists. These cases reproduce the clinical aspects of aleukia haemorrhagica, of total aplastic myelopathy or of panmyelophthisis. 2. So-called pseudo-aplastic cases present the clinical symptoms of the aforementioned cases but develop more slowly. 3. Cases with atypical aplastic anemia are seen, with hypertrophy and myeloid metaplasia, of the leukemic type of reaction. 4. There are cases of chronic or acute leukemia. These different clinical types indicate that "benzol" of coal is especially a toxin of the hematopoietic organs. Aside from the destructive action, the toxin may lead to reparative hyperplastic processes. In recent years poisoning with this substance has become rare as the result of governmental restriction of the employment of "benzol" of coal. Nevertheless variable quantities of "benzol" of coal are usually added to the products of petroleum. The authors investigated the workers who handle the benzine-benzol mixtures for symptoms of "benzolism." A study of the blood of thirty-two workers demonstrated that the inhalation of vapors of "benzol" frequently gave rise to signs of intoxication and especially to grave alterations in the diverse elements of the blood. Investigations on twenty workers whose occupations had brought them in contact with the vapors of benzine of petroleum demonstrated that benzine of petroleum likewise exerts a toxic action, particularly on the erythrocytes. Fourteen of the twenty subjects who had been exposed only to benzine of petroleum presented anemia of considerable severity. The authors stress the necessity of complete removal of the vapors by suitable ventilation and by education of the workers.

Revue Méd.-Chir. des Maladies du Foie, Paris

14: 289-370 (Sept.-Oct.) 1939

*Esters of Cholesterol in Hepatic Insufficiency. N. Fiessinger and M. Gorski.—p. 290.

*Quick's Hippuric Acid Test of Hepatic Insufficiency. N. Fiessinger and R. F. Minoli.—p. 305.

Nicotinic Amide in Blood in Course of Hepatic Diseases. M. Albeaux-Fernet.—p. 323.

Errors of Functional Exploration of Liver by Means of Fractionated Galactosuric Concentration Test. N. Fiessinger, H. Walter, M. Gaultier, and J.-J. Welti.—p. 327.

Porphyrinuria in Patients with Hepatic Disease. N. Fiessinger and A. Gajdos.—p. 348.

Plasmatic Concentrations of Bengal Rose Evaluated with Ionocolorimeter. K. Agapeyeva.—p. 363.

Cholesterol Esters in Hepatic Insufficiency.—Fiessinger and Gorski point out that a false conception has been maintained regarding the role of cholesterol in hepatic insufficiency, namely that its increase indicates hepatic insufficiency. In recent years attention has been drawn to cholesterol esters. It has been demonstrated that cholesterol exists in the organism in two forms: free and esterified. It seems that the esterification of cholesterol is effected in the liver by an esterase capable of decomposing the cholesterolic esters as well as of esterifying the cholesterols. Normally the total cholesterol content of the serum is 1.6 Gm.; that is, 1 Gm. of esterified cholesterol and 0.6 Gm. of free cholesterol. Since Thannhauser, the majority of investigators have admitted that in grave hepatic insufficiency the esterified cholesterol is reduced more rapidly and more

noticeably than is the total cholesterol. The authors investigated the problem in various pathologic conditions, such as benign icterus, cirrhosis, grave icterus, hepatic cancer and hepatitis. They concluded that cholesterol occurs as a reactive lipid in association with a declining infection or a subsiding intoxication. It is a proof and not the manifestation of the morbid process, but a proof of a favorable reaction. The greatest portion of this cholesterol is in the state of an ester. If this cholesterol is largely of endocrine origin, as it appears to have been demonstrated, its esterification is especially deficient in the hepatic function. This is the reason why in grave involvement of the liver (fatty degeneration) the esterified portion undergoes a considerable decrease more marked than that of the free cholesterol. This may be due to a deficiency of material, oleic, palmitic and stearic acids, or to a deficiency of the ferment of synthesis. The latter interpretation seems the more probable. Should this prove to be the reverse action of the hepatic esterase, the grave hepatic insufficiency could be considered at the same time as an inhibitor of the cholesterologenesis and of the esterase of the esters of cholesterol.

Hippuric Acid Test of Hepatic Insufficiency.—Fiessinger and Minoli report their experiences with the test in normal subjects and in patients with hepatic and other disorders. They found that elimination of hippuric acid in urine after the ingestion of sodium benzoate constitutes an excellent test for the functional study of the liver and for the detection of hepatic insufficiency. The phenomenon is a complex method of conjugation of exogenic benzoic acid with endogenic aminoacetic acid. This conjugation is accomplished in the liver, especially under the influence of a hippurase. Evaluating the results in normal subjects, the authors state that the quantity of hippuric acid eliminated during the four hours following ingestion of 6 Gm. of sodium benzoate varied between 2.19 and 3.13 Gm. These figures are lower than those obtained by other investigators. Tests on patients with benign catarrhal icterus revealed that the total elimination of hippuric acid varied between 1.57 and 2.13 Gm. and that a retardation was noticeable in the elimination. In compensated cirrhoses the hippuric acid elimination was reduced; the figures varied between 1.26 and 0.76 Gm.; however, in decompensated cirrhoses the figures were as low as 0.61 and even 0.31 Gm. The reduction was less pronounced in the course of a melanosis of the liver and in alcoholic polyneuritis. In diseases not associated with severe hepatic insufficiency, the urinary elimination of hippuric acid is almost normal. Thus, in albuminuric nephritis without azotemia and in goiter with mild hyperthyroidism the urinary discharge of hippuric acid was normal. Disregarding the sources of error which arise from inadequate digestive absorption or from deficient renal elimination, the reduction of induced hippuria expresses either (1) the incapacity of the liver to fix benzoic acid during the passage of the blood or (2) the considerable deficit of aminoacetic acid reserves in severe hepatic insufficiency or (3) the diminution of the activity of the hepatic hippurase or the existence of a cause which impedes its action.

Schweizerische medizinische Wochenschrift, Basel

70: 1-24 (Jan. 6) 1940. Partial Index

*Leukemia and Tumors. M. Askanazy.—p. 1.

Benign Spontaneous Pneumothorax, Tuberculous Spontaneous Pneumothorax and Spontaneous Hemopneumothorax. M. Castex and E. S. Mazzei.—p. 6.

Hemodynamic and Excitomotor Cardiac Insufficiency. W. Löffler and M. Kartagener.—p. 10.

70: 25-48 (Jan. 13) 1940

Clinical and Pathologic Aspects of Cutaneous Hemorrhages. M. A. Schoch.—p. 25.

*Leukemia and Tumors. M. Askanazy.—p. 1.

Comparative Investigations on Enzymatic Hydrolysis of Acetyl Anemia and Acetylcholine. H. Birkhäuser and H. Süllmann.—p. 34.

Relations of Ascorbic Acid to Epinephrine. P. Marquardt.—p. 36.

Leukemia and Tumors.—Askanazy examined the characteristics of leukemia with regard to the alternative hyperplasia and neoplasia and compared it with that of true tumors. He demonstrated that the essentials of leukemic proliferations are not identical with those of hyperplastic malignant proliferations either in etiology, morphology or function. However, leukemia shows a close relationship to tumor formation not only as

regards the etiologic complex of the general predisposition and the exogenic and endogenic factors in the cells but also with regard to the morphology in the form of an unrestricted growth with manifold atypias, with enlargement of nuclei and atypical mitosis. It has not been demonstrated that the leukemic metastases develop differently from those of the malignant tumors. In their functional nature leukoses and neoplasms are similar in that the fertility of their cells becomes enormously increased without destruction of the inherited function of the cell. The author concludes that the leukemias are tumor-like processes. He thinks that the fact that normal medullary cells enter the blood without giving rise to the formation of tissue explains some differences between leukosis and neoplasm. The frequently observed association of leukemias with tumor formation of the corresponding cell type become understandable in view of this fact. A final solution of the problem will be possible only after a better understanding of the etiologic complexes of both diseases.

Ateneo Parmense, Parma

11: 433-564 (Nov.-Dec.) 1939. Partial Index

*Antiserum Treatment of Peritonitis. E. Ponzi.—p. 433.
Ide's Reaction for Syphilis. G. Pavarani.—p. 527.

Antiserum Therapy of Peritonitis.—Ponzi administered antiserum both for the prevention and for the treatment of peritonitis in fourteen cases. The series contained patients who had been operated on and those treated conservatively. They presented acute appendicitis, intestinal or suppurative gynecologic disease, peritonitis complicating the conditions mentioned and septic abortion. The majority of the patients entered the hospital in a grave toxic state. The author employed Behring antiserum containing 1,000 international antitoxin units against *Bacillus perfringens* and 1,200 Behring units of coli antitoxin for each cubic centimeter of the mixture. The eight patients in the group operated on received an infusion of 40 cc. of the antiserum in the peritoneal cavity at the conclusion of the operation. In addition they received daily intramuscular or intravenous injections of 20 cc. of the antiserum for two or three days up to a total dose of from 100 to 120 cc. in the course of four or five days. The six patients not operated on were given daily intramuscular or intravenous injections in the same dosage. The patients were desensitized with normal serum immediately before the administration of the antiserum. No anaphylactic reactions followed. The postoperative course was uneventful. Peritonitis and toxemia were rapidly controlled. The general condition of the patients rapidly improved and progressed to complete recovery in all except two, who had peritonitis with grave toxemia following septic abortion and who had been treated late. For the best results in the prevention of peritonitis, the patient should be given an early direct infusion of 40 cc. of the antiserum while still under the effect of anesthesia, to be followed by further administration. For conservative treatment, the best results are obtained by administering antiserum therapy early in the course of the disease.

Archiv für Ophthalmologie, Berlin

141: 125-338 (Dec. 20) 1939. Partial Index

Pathogenesis of Thrombosis of Vena Centralis Retinae. E. Seidel.—p. 151.
Analysis of Healing Atypical Cataract of Gout. Ostmann.—p. 156.
Comparative Investigations on Behavior of Lens and Cornea Toward Infra-Red Rays. A. Bakker.—p. 180.
Functional Disturbance of Hypophysis of Fracture of Sella Turcica. Marioth.—p. 188.
Retinal Periphlebitis and Tuberculous Etiology. M. Wendling.—p. 198.
*Examination of Hepatic Function in Patients with Glaucoma. H. Schmelzer.—p. 266.
Problem of Strabismus. F. Weckert.—p. 296.
*Value of Chemotherapy in Treatment of Serpiginous Ulcer of Cornea. B. Szinegh.—p. 300.

Hepatic Function in Glaucoma.—Schmelzer has investigated the intermediate metabolism of patients with and without glaucoma. The tests were performed on seventy-eight patients with glaucoma and on seventy controls of the same age. A large majority of patients with glaucoma had a pronounced hypercholesteremia and many gave a positive xanthoproteic reaction. From these observations, impairment of the hepatic function was deduced. Tests of the function in patients with glaucoma demonstrated that, in contradistinction to controls of the same age, an impairment of the hepatic function existed,

manifested by the fact that during tolerance tests with amino acids (aminoacetic acid) the deamination was retarded. This observation supports the assumption that hepatic disturbances play an important part in glaucoma.

Chemotherapy in Serpiginous Ulcer of Cornea.—Szinegh employed a sulfanilamide preparation chemically identified as 2-sulfanilylamino-pyridine in the treatment of serpiginous ulcer of the cornea. One tablet of 0.5 Gm. was given three times daily for five days and, when necessary, the medication was repeated from five to seven days later. In children a smaller dose was given. The chemotherapy was combined with local measures and with injections of foreign proteins. The author gives brief clinical histories of ten patients in whom this treatment was employed. He stresses that, with the administration of sulfanilamide, progression of the corneal ulcer was arrested, a large portion of the cornea remained transparent and a better vision was obtained than in cases treated without sulfanilamide. There were no undesirable secondary effects of the drug.

Archiv f. orthopädische u. Unfall-Chirurgie, Berlin

40: 1-136 (Nov. 24) 1939. Partial Index

Generalized Epiphyseolysis Adolescentium and Bilateral Cases of Coxa Vara Adolescentium. W. Möller.—p. 1.
Technic of Bandaging in Traumatic Surgery. P. von Puky.—p. 14.
Treatment of Fractures of Head of Tibia. A. Wuthrich.—p. 71.
Hereditary Aplasia of Interphalangeal Joints and Its Relations to Aplasia of Members. F. Schwarzweller.—p. 84.
*Action of Bone Fracture on Total Organism. T. Kallfelz.—p. 102.
Indefinite Pains in Right Hip, for Years the only Symptom of Spondylitis L₄ and L₅. K. Schnaberth.—p. 114.
Treatment of Vertebral Fracture. J. Lampert.—p. 119.

Action of Bone Fracture on Organism in General.—Kallfelz directs attention to the fact that a bone fracture affects the entire organism and that the healing of a fracture is influenced by existing disease. Bone fracture may be followed by typical signs of shock. The temperature may be increased for several days, probably as the result of the effusion of blood which accompanies the fracture. The effects of a bone fracture on the blood and its elements are manifested by the increase in sedimentation rate, by leukocytosis in the first twenty-four hours, by a fall in the erythrocytes and by alterations in the cholesterol, chloride, calcium and sugar contents of the blood. Bone fracture influences the sodium chloride, nitrogen, urea, proteins and substances giving a xanthoproteic reaction. The influence on the glands of internal secretion, particularly the thyroid, the parathyroids and the hypophysis was noted by several observers. Circulatory disturbances induced by bone fractures manifest themselves as hypostatic pneumonia, edema, thrombosis or embolism. The occurrence of fat embolism is dependent not only on the quantity of fat but on its state of emulsion as well. Urinary calculi may form after vertebral fractures.

Beiträge zur Klinik der Tuberkulose, Berlin

94: 99-182 (Dec. 18) 1939

Technic and Results in Extrapleural Pneumolysis. W. Curschmann.—p. 99.
*Contralateral Effect of Artificial Pneumothorax. H. Hofmann.—p. 121.
Tuberculosis and Pregnancy. H. Hangleiter.—p. 145.
Osteitis Tuberculosis Multiplex Cystoides: Case. M. S. Erk and K. S. Saracoglu.—p. 173.
Tuberculosis and Patient's Emotional Life. A. Wiesinger.—p. 179.

Contralateral Effect of Artificial Pneumothorax.—Hofmann studied the reaction of artificial pneumothorax on the opposite lung in 100 cases. Twenty cases with a unilateral infection progressed favorably and were dismissed from consideration. In the remaining eighty cases more or less limited recent infiltrations were found in the opposite lung before artificial pneumothorax was induced. In sixty-eight (85 per cent) of these, pulmonary lesions were either inactive or regressing and the sputum was bacilli free at the end of one year, with the exception of four. The other twelve cases (15 per cent) disclosed extension of the existing foci in the opposite lung during unilateral artificial pneumothorax. Six patients died and six recovered after prompt recourse to bilateral artificial pneumothorax continued for two years. The author attributes three of the deaths to tubercular implications (ages between 10

and 17), two to mismanagement and one to the patient's rejection of proposed collapse surgery. Since new foci were never observed to arise in the opposite lung in well managed artificial pneumothorax, he believes that this procedure protects the other lung from infection. No permanent activation need be feared in cases of demonstrable calcification. Since exacerbations may ensue after institution or before termination of this procedure, careful roentgenologic supervision is required at all times. Exacerbations in the opposite lung after termination of artificial pneumothorax are similar to original infections both in their nature and in their modifiability. The author believes that bilateral artificial pneumothorax is indicated only if degenerative processes are observed in both lungs. Collapse surgery is not indicated as the initial method of choice.

Klinische Wochenschrift, Berlin

18: 1589-1612 (Dec. 23) 1939. Partial Index

- Connective Tissue Space and Its Relations to Parenchymal Cell. D. Roller.—p. 1592.
Enrichment of Diet with Vegetable Protein. F. Lommel.—p. 1596.
Counting of Reticocytes (So-Called Reticulocytes). G. Sack.—p. 1598.
Investigations on Pancreatic Ferments of Fifty Polyclinical Patients with Epigastric Symptoms. L. Ehrhardt.—p. 1600.
Mandelic Acid and Infection of Urinary Passages with Colon Bacilli. H. Gross and G. Hennig.—p. 1603.
Device for Irrigation of Rectoscopy. S. Kuthan.—p. 1603.
*Transfusion of Plasma-Free Erythrocytes. H. Beumer and K. Schwartz.—p. 1604.

Transfusion of Plasma-Free Erythrocytes.—Beumer and Schwartz tried the transfusion of erythrocytic pulp that was practically free from plasma. Animal experiments revealed that erythrocytes obtained from blood after centrifugation and withdrawal of the plasma can be injected intravenously without eliciting disturbances. The erythrocyte count of rabbits increased from six million to twelve million when two or three injections of erythrocytes were made within two days. Next the authors employed the method in a moribund nursing with atresia of the bile duct and in two children with severe post-leukemic anemia. These children were injected with 120 cc. of erythrocytes from 250 cc. of whole blood. The procedure was used with good success in a nursing with goat's milk anemia. The authors observed that the injection of erythrocytes was tolerated better than the injection of twice the amount of whole blood. They emphasize that before the erythrocyte pulp is introduced it must be filtered through a thin layer of muslin in order to remove the platelets and leukocytes that adhere to it. The remaining plasma was used for other purposes.

Zeitschrift für Krebsforschung, Berlin

49: 443-656 (Dec. 20) 1940. Partial Index

- Influence of Climate on Growth of Spontaneous Malignant Tumors of Mice and Inoculation Tumors of Rats. G. Banzer.—p. 443.
Innervation of Carcinoma. A. Abraham.—p. 470.
Cellular Storage of Carcinogenic Hydrocarbons. A. Graffi.—p. 477.
Incidence of Cancer and Necropsy Statistics. W. Fischer.—p. 496.
Experimental Production of Tumors in Salivary Glands. E. Benecke and J. Schröder.—p. 505.
*Some Chemotherapeutic Compounds Effective in Inoculation Tumors. C. Dittmar.—p. 515.
Carcinosis of Pulmonary Lymph Nodes in Multiple Cancer Embolism of Small Branches of Pulmonary Artery. M. Schrägle.—p. 573.
Carcinogenic Benzpyrene Obtained from Tobacco Tar. A. H. Roffo.—p. 588.

Chemotherapeutic Compounds in Inoculation Tumors.—Dittmar discusses compounds capable of exerting a chemotherapeutic action on inoculation carcinoma. Bromoacetic acid and iodoacetic acid and their derivatives greatly inhibit the tumor glycolysis and exert a slight influence on the growth of tumors; on account of their great toxicity, however, they are of no therapeutic value. The slightly toxic halodicarboxylic acids, bromosuccinic acid and bromomalonic acid, are suited for therapeutic purposes. The author assumes that they are decomposed in the organism into monocarboxylic acid and exert their action as such. Chemotherapeutic action is exerted also by some compounds of chaulmoogra, especially by chaulmoogryl-zephirol. Colchicine likewise inhibits tumor growth but is extremely toxic. Less toxic derivatives such as colchicine and oxycolchicine are ineffective. Garlic oil contains a volatile substance which injures tumor cells and bacteria. The author believes that this substance is probably diallylsulfide. The effec-

tive group of this compound is the allyl group, for diethylsulfide is without influence on the growth of tumors. Bactericidal compounds, such as the p, p-diamidodiphenylsulfoxide, inhibit tumor growth. Heptylaldehyde liquefies spontaneous tumors (mammary carcinomas) in mice probably as the result of capillary damage caused by the substance. The growth of inoculation tumors is likewise inhibited by heptylaldehyde and by the unsaturated aldehyde citral, which is even more effective.

Ugeskrift for Læger, Copenhagen

102: 115-144 (Feb. 1) 1940

- *Case of Chronic Hemolytic Anemia with Nocturnal Paroxysmal Hemoglobinuria. P. Arndal.—p. 115.
*Attempt at Treatment of Eunuchoidism with Gonadotropic Hormone and Testis Hormone. E. Roelsen.—p. 123.
Case of Diaphragmatic Hernia (Hiatus Hernia) Treated with Thoracal Operation. A. Sennels.—p. 128.
Control Fluids for Protein Determination by Glass Bead Method. J. Bing.—p. 130.

Hemolytic Anemia with Nocturnal Paroxysmal Hemoglobinuria.—Arndal states that essential hemoglobinuria can be classified in four main groups, one of which is atypical paroxysmal hemoglobinuria. He tabulates the thirty-three cases published in the literature and adds a personal case. The disorder most often occurs in the third or fourth decade of life and affects men and women equally. The onset is insidious or with slight pain in the abdomen, epigastrium or lumbar region together with occasional fever and chills. Jaundice is frequently the first symptom, but hemoglobinuria may be present from the beginning. The liver and spleen are enlarged. The general condition is not greatly disturbed, although an anemia of about 50 per cent develops. The hemoglobin percentage is ordinarily from 25 to 50 with an index of about 1. The red blood corpuscles vary from 900,000 to 3 or 4 million. There is generally a moderate leukopenia. A slight lymphocytosis may be found. The bleeding time, coagulation time and osmotic resistance are normal. A plasma color count from 15 to 20 is usual. In almost all cases the red blood picture shows a slight anisocytosis and poikilocytosis. There is a constant reticulocytosis of from 10 to 15 per cent. Periodically the urine is almost black, contains oxyhemoglobin and has no red blood corpuscles but gives a positive albumin reaction. Considerable urobilin appears in the portions of the urine without hemoglobin. The disorder is not curable. It is believed to be fatal in the course of some years. In Rosenthal's case the duration was thirty-three years. Death is usually due to venous thrombosis. Microscopically the pathanatomic examination reveals the spleen pulp deficient in cells but without pathologic changes. In the liver, necroses appear around venae centrales. Hemosiderosis in the renal cortex is typical and always localized in tubuli contorti and Henle's loop. Parenchymatous degeneration is seen in the kidneys. The bone marrow is usually hyperplastic. The etiology and pathogenesis are not clear. Authors apparently agree that treatment other than quiet and rest in bed during exacerbation, together with iron and liver in treatment of the anemia, should not be instituted. Arndal suggests the possibility that oscillations of the carbon dioxide tension in the blood may account for the nocturnal appearance of the hemoglobinuria.

Eunuchoidism Treated with Gonadotropic and Testis Hormones.—Roelsen describes a eunuchoid, aged 25, with marked genital hypoplasia corresponding to the development in a child of 5, lack of secondary sex characteristics and greatly retarded closure of the epiphysis. After treatment with large doses of gonadotropic substance for about a year and a half puberty occurred, and subsequent treatment with large doses of testis hormone (900 mg. of testosterone, mainly as testosterone acetate) for about three months resulted in increased growth of the prostate and marked stimulation of the secondary sex characteristics. The author found the testosterone preparations equally effective whether applied as an inunction or injected. He says that treatment with testosterone is a substitution therapy, its effect rapidly subsiding on discontinuation. In his opinion the prognosis is doubtful. To establish an approximately normal sexual life, substitution therapy with androgenic substances seems the only course.

THE STUDENT SECTION

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The Training of the Intern

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The education of interns and residents is a major responsibility of the modern hospital. The true objective is the preparation of young physicians for their future work as independent practitioners. The Morrisania Hospital has taken an active part in the training of interns and residents, and its work has been original in many respects. The main purpose of the program for interns is proper training, education and supervision. The suggestions presented at this time will lend themselves for adaptation in any hospital that has an adequate supply of clinical material.

In dealing with problems of hospital administration, the administrator sometimes overlooks the problem of the new intern, who has difficulty adjusting himself to a new environment, a new hospital and a new routine. In many hospitals the intern has to grope his way through the institution before he becomes acquainted with its various divisions, its personnel and its functions, and many of them do not get in touch with some departments during their entire stay in the hospital. It is therefore important that interns before commencing their internship be given a personal interview by the superintendent and his assistants, at which time a discussion and clarification should be made of the rules and regulations of the hospital, outline of routine duties, care of the patient, treatment of the patient's family, and attitude toward the nursing staff, the attending staff and other members of the hospital personnel.

INTRODUCING THE NEW INTERNS

Through the cooperation of the administrative, nursing, social service and dietary divisions it was possible to formulate a program which is given to the members of the intern group on five consecutive days prior to the commencement of their internship. The program consists of seven lectures and demonstrations. The

superintendent discusses the following subjects with the new interns: (1) rules and regulations of the hospital; (2) hospital records, with emphasis on the importance of proper history taking, a complete physical examination, daily progress notes, the proper signing out of patients, the confidential nature of all information learned about a patient, and the completeness of records; (3) nomenclature of diseases; (4) the necessity of morning and evening rounds; (5) local laws pertaining to contagious diseases; (6) medical examiner's cases; (7) the importance of postmortem examinations; (8) the question of gratuities and other ethical problems, and (9) courtesy.

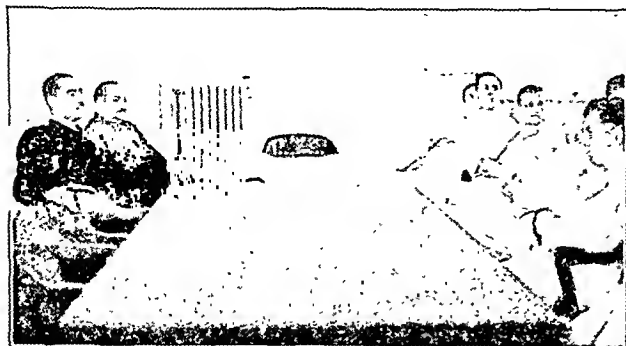
The new interns are greeted by the president of the medical board of the hospital, who introduces them to each board member and points out his exact position on the board. The deputy medical superintendent outlines the two year service, which consists of a medical and a surgical appointment. Both appointments include medicine, surgery, obstetrics, pediatrics, eye, ear, nose and throat work, the outpatient department and ambulance and emergency room service. The medical forms are demonstrated to them. These are births, death and stillbirth certificates, autopsy consents, food passes, admission forms, sheets for history, physical examination, condition, treatment, progress notes and other material. The hospital manual is presented. This is a compilation of about 130 mimeographed pages and may be referred to as the hospital Bible, as it covers everything. The intern is also given to understand that he may consult with the administration at any time on any problem he desires. He is advised of the formal monthly meeting between the intern staff and the medical superintendent, which is held for the purpose of talking over problems.

The superintendent of nurses greets the new interns with a discussion on nursing problems. The nursing service is always anxious to assist the intern and the patient in solving their prob-

The material in this article supplemented a motion picture presented in Chicago before the Annual Congress on Medical Education and Licensure, Feb. 12, 1940.

lems. Nursing of good quality consists of care of the patient with the cooperation of the nurse, the physician and the family.

The interns are taken on an orientation tour of the hospital so that they may become acquainted with its various divisions and with



The superintendent and deputy medical superintendent explain the rules of the hospital and the rotating schedule, respectively.

their functions in relation to the hospital and themselves. This includes the nonclinical service departments as well: kitchens, laundry, power house, stores, information desk, switchboard, compensation office, investigation division and property clerk.

The chief dietitian discusses dietetics in health and disease. Whenever possible a patient should be put on the general diet lists. Special diets must be justifiable on the grounds of clinical observations and laboratory data. It is always desirable to include the diagnosis when ordering a special diet. The dietary department answers questions gladly and welcomes consultations with the intern on special cases at any time.

The social service department tries at all times to cooperate with the medical staff whenever possible. The following cases are a few of the types referred to social service: orphans, foundlings, deserted babies or mothers; unmarried mothers; homeless, destitute or tuberculous patients; patients requiring convalescent care; patients whose relatives must be located; patients requiring clothing on discharge; children requiring a boarding home; mothers who cannot give proper care to their children, and patients who require special follow-up work.

MEDICAL EXAMINATION OF THE INTERNS

Two days before the beginning of their internship the new members of the house staff are given a complete physical examination, including x-ray study of the chest, a complete blood count, urinalysis and other laboratory procedures. Complete records are kept. The examination is repeated annually. Morrisania Hospital now has one of the best intern health programs in New York. This is personally carried out by the various specialists in the field of medicine attached to the hospital staff. On

the day after the physical examination the interns are assigned to their rooms and services and are given their uniforms, so that on the day of their appointment they are ready to begin work in their respective wards.

DEMONSTRATION OF COMMON MEDICAL PROCEDURES

Training in the operating room technic includes learning to scrub for operation and becoming familiar with the instrument tray. The preparations consist of cleansing the hands, change of uniform, the approach to the operative field, changing gloves during the operation and changing position during the operation. The interns are also taught the rules of the operating room, the rules governing spectators in the operating room, the care of instruments and the arrangement of the suture tray.

The operation of the blood bank is explained, including suggested methods for obtaining blood. The collection and distribution of blood, directions for taking blood and directions for administering blood are given.

The infusion technic is demonstrated, together with the procedure for cutting down on the vein.

An abdominal tap, a chest tap and a spinal tap are performed, with emphasis on the indications and the necessary articles required.

The operation of the oxygen tent is demonstrated and its use and hazards are explained. Interns are familiarized with the use, the operation and the function of the respirator. They are acquainted with the Wangenstein duodenal drainage tube and the Winkelstein drip, a form



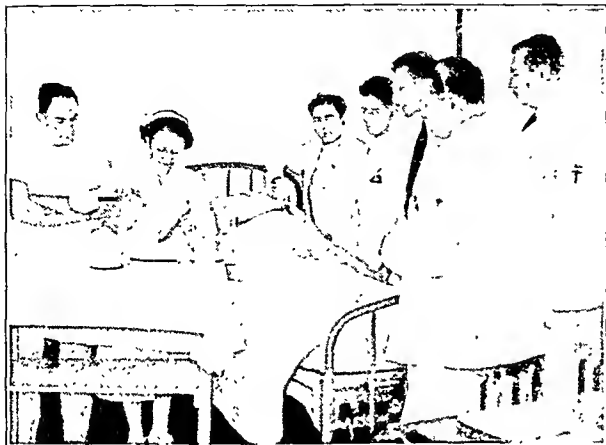
Instructions in hospital records and nomenclature.

of treatment of peptic ulcer in which a continuous feeding of milk and cream is given to the patient; with this procedure a stomach tube is passed and the flow of milk is regulated.

MANAGEMENT OF EMERGENCIES

The intern is instructed in all the known emergencies which he may meet in homes or on the street. He is told to be courteous, cool, calm

and collected at all times and, no matter what the disaster may be, to observe carefully all alcoholic patients, compound fractures, penetrating wounds and surgical abdominal involvement. He is taught the importance of consents for operations on minors, signed and witnessed



Nursing procedures are demonstrated.

releases, complete records, speed in responding to calls, and the reporting of contagious diseases to the board of health.

An emergency tracheotomy is demonstrated in the morgue, the operator pointing out the indications and the instruments used. The intern is impressed with the significance of certain rules: to do it early, never to use general anesthesia on a dyspneic patient, not to give morphine, and to observe the importance of after-care.

The resident in traumatic surgery demonstrates the first aid treatment of fractures, which is most important for the patient who has to be transported from the scene of the accident to the hospital. This illustrates the part played in the education of the intern staff by the resident. The admitting doctor acquaints the new intern with the contents of the ambulance bag and emergency medications. The three months of ambulance service includes an active participation in the treatment of emergency patients, who may either walk in or be transported to the emergency room.

In the laboratory the intern should not be regarded as an employee and be burdened with time-consuming repetitions—work better done by paid technicians. Rather he should be expected to follow up the blood and urine tests and the pathologic specimens of the cases to which he is assigned.

NURSING PROCEDURES

The intern is taught ordinary nursing and medical procedures such as giving various kinds of enemas, administration of hot and cold packs, hypodermoclysis, preparation and application of a mustard plaster, methods of restraining dis-

turbed patients, management of the eroup tent, application of turpentine stupes, irrigations, and the care and prevention of bed sores. The demonstration of a mustard paste or an ear irrigation to the interns has led to many instructive inquiries. The purpose of this type of training is to familiarize the new interns with the essentials of common procedures, too frequently overlooked or entirely forgotten. They are the procedures which a doctor in practice may be called on to do or direct. The prevention and treatment of bed sores are shown with explanations of nursing measures and mechanical devices. The interns are taught the technique of absolute cleanliness, massage with a rotary motion, alcohol rubs, frequent change of the patient's position, keeping the foundation sheets tight, keeping the bed free from crumbs, and using pads to keep the skin surfaces apart. They are shown the use of air rings, cotton rings, air mattresses, padding for bony prominences and pillows. Pressure sores must always be reported to the head nurse. The treatment given must be approved by the doctor.

OTHER FEATURES OF TRAINING

The record committee chairman of the medical board, with the assistance of the record librarian, instructs the newly arrived interns in the use of the standard nomenclature. He explains what constitutes a proper history, physical examination, summary, progress notes and discharge notes. It is impressed on the intern that defective charts will be called to his attention by the record librarian.

The recreational side of the intern's life is frequently overlooked, yet in view of the exact-



Training in reading of electrocardiographic tracings.

ing demands made on him this should be considered essential. The living quarters should be sufficiently isolated that the interns may feel free to relax. A quiet corridor and individual rooms, affording privacy, are factors to be considered. A radio, a card table, a piano and, if space permits, a billiard table should be provided. For outdoor recreation a tennis court or handball court (or both) is beneficial.

The intern is encouraged to think for himself. He records the history, the physical examination and his own diagnosis, which are checked by the resident or the senior house officer. The visiting physician in each instance then checks



Instruction in interpretation of x-ray films.

the house staff's work, calls attention to errors and supplements the clinical work with any additional observations, which he signs. The intern follows the progress of the patient from time to time as indicated, enters progress notes on the chart and records the patient's condition on discharge. Discussion of the condition of a patient with the closest relative or the next of kin is an important function of any hospital. The hour of 11 a. m. is set aside for this purpose at our institution. This pleasant relationship leads to a more friendly community and to greater facility in obtaining consent for autopsy.

Education is maintained by practical lectures, which are given on forty Wednesday afternoons during the year on the common necessary things that a doctor should know. These are given by members of the attending staff and prominent men in medicine in New York and other cities. Topics are chosen by the interns.

The intern is assigned to the outpatient clinic for six weeks as part of his regular rotating service at the beginning of his second year of internship. A systematic program of instruction in the form of postgraduate training is conducted by the senior members of the visiting staff, including venereal disease, office gynecology, urologic diagnosis, dermatology, allergy, proctology, physical therapy, electrocardiography and injection of varicose veins. The greater number of these are not encountered in a general internship in the inpatient department, but they will be encountered later, in office practice.

Bedside work and routine ward rounds with his chief and associates should be the high lights in the day's work of the intern. Here the chief concern should be differential diagnosis and treatment, and the intern should be made to familiarize himself with the ophthalmoscope, auroscope and the other diagnostic apparatus and measures which are ordinarily used by the general practitioner. At this time the chief of service should review the record and make such comments or corrections on the charts as are necessary.

The departments of pediatrics, obstetrics and gynecology, medicine, surgery, pathology and roentgenology have their weekly conferences and rounds, at which time attempts are made to teach the intern. Interns and residents present reviews of histories, diagnoses and treatment, which are further discussed by the attending staff. Every casualty is minutely studied for detection of errors either in judgment or in procedure.

In addition, the interns hold their own conferences. The educational committee of the house staff arranges weekly conferences consisting of the presentation of interesting cases throughout the institution. An attempt is made to correlate the clinical, roentgenologic and pathologic data. The presentations afford a kind of forum for our young and ambitious interns in preparation for future academic endeavor. Interns and residents meet every Wednesday afternoon in the hospital library and review the current medical literature. They also participate in



The interns frequent the medical library. The taller of the two gentlemen standing is Dr. Nathan B. Van Eetten, President-Elect of the American Medical Association.

follow-up clinics, an extremely important factor in the teaching of interns and residents.

Finally, I wish to state that the quality of medical service and intern teaching entails dual responsibility: it depends on interest shown both by the administration and by the medical staff.

The Medical Student Before and After Graduation

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BOSTON

I am speaking here as one of you and as one whose medical wanderings and experiences are, fortunately, as yet not far removed from yours. I shall try to describe to you some experiences which have proved constructive, as well as some which have been nonproductive or even harmful. I shall mention some ideals, many of which, though far from being attained, have served as beacons in guiding me amidst difficulties. For, as an able Boston surgeon, Dr. John Homans, has said: "No one ever practices quite what he preaches. If he did, he would be too unspeakably virtuous."

It has often been maintained that one learns only through trial and error. There is the skeptic, who claims that teaching exerts little influence and that instruction is not likely to sink very deeply into the minds of students. And yet a teacher may hope that even the student who is wisely skeptical and, on the surface, blasé will tuck certain instructions away in his subconscious mind, just to recall them for test years later when he faces a similar problem alone. If experience has proved that the instructor of his school days is correct, the heretofore "clever" but "suspected" instructor becomes a trusted and beloved teacher and colleague. Thus the results of the best teaching become increasingly effective as the student's experience grows with advancing years. Even if what is taught proves eventually to be untenable the effort is not wasted, for the believer uses such knowledge as a guiding theory during the initial stage of his medical voyage. Like other theories, this too is subsequently discarded, when the student has gained self assurance as a result of accumulated experience. Hence the best way to learn is to be open minded and yet skeptical, to believe and to disbelieve at the same time. I beg of you to adopt this attitude toward what I have to say.

DISILLUSION

The first years in medical school, struggling with anatomy, biochemistry, physiology and pharmacology, often bring hardships and one wonders what all this has to do with bedside medicine. Then come the clinical years with new stimulus and with human contact as symbolized by the use of the stethoscope. But soon a new disillusion is experienced. The student discovers that the knowledge and power of the

once admired clinical teacher are limited and that medicine can cure but few diseases. He asks himself "Is this, then, the field I dreamed of? Shall I take up surgery, in which field, at least, I can use a knife?" And later in the hospital he wonders "How and where can I start to practice? Shall I be able to compete with others and can I ever make a living? Will it be possible to keep up with medical progress if I settle down in a small community? Am I wise even to contemplate practicing when it looks as if medicine is becoming 'completely socialized'?" And so some day after graduation, when a little tired and depressed, you will discover that "graduation," once the "great goal," was but a formality; that you were a student before it and that you remain one after; that your problems are increasing and not decreasing, and that, after the sheltered and artificial atmosphere of the school, you are now sailing on an ocean of limitless horizon.

Magendie said "Medicine is science in the making." Well, a century later it is still in the making. Medicine actually, however, represents a field with ill defined borders in which science, human relations and empiricism mingle. Each of us knows but a limited portion of this field and each of us practices medicine somewhat differently. Knowledge of detail is essential but it is inadequate. What we need is crystallization of principles which will unlock the mysteries of many problems and will relieve the mind crowded with unrelated facts.

STARTING YOUR CAREER

With your entrance into medical school your medical career starts. It is a full time life career. You cannot afford to neglect any part of this training. A medical school training of four years, on the other hand, cannot make a physician. The primary function of the medical school is to give training in intelligent and keen observation, in critical analysis and in the right approach. As a result of demonstration of the broad principles of the biologic sciences and their applications to clinical medicine you will become convinced that the two are closely linked. At the same time the significance of clinical medicine as an independent discipline, built on classic tradition and on the empiric practices of the ages, will be demonstrated to you.

Gradually, as you progress in medical school, the patient becomes the center of interest and activity. As Lord Horder advises: "Whatever may be the special branch of medicine that attracts us, it is commonly accepted that it is at

From the Medical Clinic of the Peter Bent Brigham Hospital and the Department of Medicine, Harvard Medical School. Read before the Alpha Omega Alpha Society of the University of Virginia Medical School, Feb. 19, 1940, and in part as the Annual Lecture of the Sir William Osler Society of the Tufts College Medical School, March 17, 1939.

the bedside where, on the one hand, the vital expressions of disease are manifested and where, on the other hand, the contributions made by laboratory, both to diagnosis and to therapy, must eventually be tested . . . 'Les malades, toujours les malades.' " Ryle describes as the aims of clinical science "to increase and perfect our knowledge (with a view to its control) of disease in man, and equally our knowledge of man in disease, by every legitimate means of science and art at our disposal. In furtherance of this aim the study of healthy structure and function plays a leading part."

Obviously in the course of your undergraduate training you not only should expand your knowledge but also from time to time should bring the acquired information into new perspective. In the first stage of medical teaching, simplification and segregation are inevitable. Subsequent experience forces modification and change of emphasis. During the first and second years, for example, edema means but a physiochemical disturbance in which changes in the osmotic pressure of the blood, capillary pressure and permeability play a role. By the fourth year, however, edema represents a symptom or a sign occurring in a number of diseases. The underlying mechanism of various types of edema in patients varies. Hence the proper recognition and interpretation of edema become an important aid in diagnosis and treatment. In the clinical analysis and treatment of edema your combined knowledge of physiology, chemistry, pathology, pharmacology and clinical medicine will come into play. If you carefully analyze the edema presented by the patients, you will also discover that the information gained in physiology and biochemistry is not adequate to explain all edemas observed at the bedside. You will begin to suspect that chronically deranged intercellular spaces must also play a part in certain types of edema. Thus clinical medicine frequently suggests investigative problems in physiology and biochemistry. Even if you are not an investigator, you should cultivate the spirit of search in the study of the patients. This spirit eliminates the drudgery of daily routine and is the best stimulus to good practice.

It is essential that, as you advance in a field, your vision and aim should progress also. Otherwise you may repeat the same activity year after year. Let us take the study of internal medicine as an example. This course is usually given during three years, but in each year the aim is different.

In the second year course in medicine one learns physical diagnosis. Technic of eliciting signs is acquired, and this work offers good opportunity for the development of the power of observation. In order to take diagnostic advantage of physical signs, however, recogni-

tion of a sign is not sufficient, for the same physical sign under different conditions may have different significance. Thus a systolic murmur over the base of the heart may originate from syphilitic aneurysm, from atherosclerosis of the aorta or from aortic stenosis. Furthermore, it is essential to appreciate the limitations of physical observations as well as the factors which interfere with the elicitation of physical signs. In the presence of emphysema, for example, estimation of the size of the heart by percussion is not feasible. Similarly in pneumonia in the presence of emphysema bronchial breathing is often absent. In order to recognize significant quantitative deviation from normal signs, extensive experience with the examination of normal persons is essential. To realize the significance of the absence of abnormal physical signs in ruling out the presence of certain diseases, one needs broad clinical knowledge. Thus, advanced knowledge of physical diagnosis can be acquired only after years of training and then only if the path of such development has been pointed out to the student.

THE THIRD YEAR

In third year medicine, instruction is given in the technic and interpretation of history taking and in clinical laboratory methods. After this the student makes the first attempt to diagnose disease. He must learn to differentiate between an established diagnosis and diagnostic probabilities. But capacity to label disease correctly is not equivalent to ability to understand the patient. The latter experience is left to the fourth year. By this time the student is able to diagnose disease and is now ready to undertake the analysis and treatment of the patient as a psychophysical unit, on the one hand, and to study the natural history of disease, on the other hand. In this final task the student uses all the tools acquired in his earlier school years. One of the most difficult educational tasks is to convince students of the fundamental importance of a careful follow-up study of the patient. Diseases do not fall into categories as indicated by textbooks. Each disease is characterized by numerous variations in its course and complications. Unless the student appreciates this fact and learns the course of disease, his undergraduate experience will remain incomplete. The time allotted for the study of clinical medicine is inadequate even if the student does his best. As in investigation, so in the acquisition of an education, useless repetition is frequently mistaken for thoroughness, whereas usually it is but the result of too great inertia to advance on the part of the teacher or the student.

Diseases as observed in a university clinic do not represent a true sample of their natural occurrence. Training in an outpatient depart-

ment is the closest approximation to the true situation. Here the student has an opportunity to study the incipient stages of "organic" disease as well as of disorders characterized mainly by functional and reversible changes. But again this training, to be effective, must be undertaken with zeal and vision. The undergraduate is usually fascinated by the problems of mitral stenosis, pneumonia, dissecting aneurysm, perforated ulcer, gallstones and cancer. He has an instinctive aversion toward the understanding of headaches, colitis, neurosis, skin lesions, arteriosclerosis, varicose veins, boils and other so-called minor maladies. Patients suffering from such ailments are "uninteresting." Such an attitude on the part of the student is to a large extent a reflection of the attitude of his teachers. Visiting physicians often spend hours at the bedside of a patient suffering from thrombosis of the inferior vena cava or from some other rare syndrome, while they frequently pass by the patient suffering "only" from arteriosclerosis, incipient tuberculosis, migraine, common cold or disturbance of the emotions and intellect. As a matter of fact, a study of the incipient stages of diseases and of the disorders of ambulatory patients represents the greatest challenge to an able physician and teacher.

THE PATIENT'S PERSONALITY

It is a serious shortcoming of institutional teaching of clinical medicine that the patient is apt to be stripped of his personality in the hospital. Unless the student makes a special effort, he may fail to appreciate the significance of the emotional and environmental components in disease. Social and psychic factors play a role in every disease, but in many conditions they represent dominant influences. It is essential to evaluate in each patient the quantitative role of these factors. It is a common experience to find that the mystery of complaints fades as soon as a good history of the patient's personality and social status is elicited. In private practice some of these difficulties solve themselves because it is inevitable to observe the multiple environmental influences on the patient when he is visited in his home. Indeed, the old fashioned practitioner has at times been too much influenced by these aspects, often at the expense of other active forces. If the student assumes a human and sympathetic interest in the patient and if he is taught to analyze and study these aspects of disease rationally, he will not overemphasize the importance of the materialistic part of medicine as compared with the human side. Routine analysis of personality and social factors also offers excellent training in tact and patience. As a result the student will soon find that mental factors repre-

sent as active a force in the treatment of patients as chemical and physical agents. This general problem is important and, at present, somewhat neglected.

The student should acquire early a taste for a critical reading of medical literature by taking active part in journal clubs and by frequently visiting libraries. As a result he will learn to discriminate between good and bad suggestions and will be able to continue to acquire sound medical knowledge after graduation. He should not specialize too early in the medical school unless he is sure of his taste. He should not let the spell of great leaders completely hypnotize him. As Peter Latham said long ago "But beware of great authorities. They have a tyrannous way with them."

If a field seems difficult or if you have neglected it, it is never too late to make a new effort to acquire such knowledge. Often, with new interests and mature experience, dull and obscure problems become interesting and clear. Our tastes and interests change continuously.

The student must make a constant effort to broaden himself. It is essential to understand human emotions, desires, frustrations and fears. We can apply to medical students and physicians T. S. Eliot's belief that "... what one must be judged by, scholar or no, is not particularized knowledge but one's total harvest, of thinking, feeling, living and observing human beings." Osler, in a farewell address to American and Canadian medical students, gave the following advice: "The strength of a student of men is to travel, to study men, their habits, character, mode of life, their behavior under varied conditions, their vices, virtues and peculiarities. Begin with a careful observation of your fellow students and of your teachers; then every patient you see is a lesson in much more than the malady from which he suffers. Mix as much as you possibly can with the outside world and learn its ways."

IN TOUCH WITH LAYMEN

It is often sadly recalled that physicians trained in the humanities were a fine type and that they were particularly well qualified to keep the medical profession in intimate touch with the world of laymen. This kind of medical education, it is claimed, is gone for good. I do not agree with this. The early development of the ethical and esthetic sense is fundamental in the development of physicians of the future. This sense can be cultivated through the study of religion, the humanities and the arts. The more we train our senses in these fields the deeper our sympathies become, the less prejudiced our mind and the better our judgment. Dr. Hans Zinsser, in writing of the late Francis W. Peabody, remarked "it is a rare blending of

learning and humanity, incisiveness of intellect and sensitiveness of the spirit, which occasionally come together in an individual who chooses the calling of medicine, and then we have the great physician." Osler said "The Lathams, the Watsons, the Pagets, the Jenners and the Gardiners have influenced the profession less by their special work than by exemplifying those graces of life and refinements of heart which make up a character."

IN THE HOSPITAL

A hospital internship is an essential bridge between the medical school and practice. The graduate should consider the hospital as a college. From the outset he must carry the conviction that the study and care of the patient are a challenge to the highest type of intellectual functions. In the hospital he must remain in constant contact with patients, and the work in the ward must always remain the backbone of activity.

The training acquired in medical school will find full application in the hospital, and, in addition, some new qualities of the young physician will come into play. Of these, judgment and responsibility are the most important. If the intern undertakes his hospital work with zeal, his development will progress at a remarkable pace month after month. This sensation of growth and the acquisition of new vistas are the greatest compensation for hard work. The heavy responsibilities placed on the shoulders of an intern will sharpen his powers of observation, improve his medical knowledge and ripen his judgment. Work of varying intensity will make him flexible and will train his sense of proportion. As Peabody observed, "The difficulty is that in the hospital one gets into the habit of using the oil immersion instead of the low power, and focuses too intently on the center of the field." Often the intern will be required to act promptly and independently and yet he will have to maintain perfect team work. The effectiveness of a house staff depends as much on the *esprit de corps* as on the ability of the individual members. I have seen the efficiency of the house staff wrecked by the uncooperative attitude of a brilliant egocentric intern. The right sort of house officer is always willing to lend a helpful hand to his comrade. The attitude of the intern of advanced standing is particularly important because he is the tutor of his junior. As you advance as a house officer do not forget the way you felt your first month in the hospital, when responsibilities loomed insurmountable. Be sympathetic and reassuring toward the junior, whose nervous system is strained by the unaccustomed heavy responsibilities. If you were abused as a junior, do not take compensation in similar practices. An

internship is one of the greatest trainings in the building of medical character.

The value of a house officership is proportional to the intelligent thought and work put into it. A good intern must be a good teacher as well as a good student. Members of the visiting staff often expect to learn as much from the intern as the intern can learn from them. In many hospitals the house officer is left to his own initiative to a large extent. His development is therefore mainly self education based on knowledge and experience acquired in the medical school. But organized journal clubs, joint demonstration of cases, discussions and clinicopathologic conferences will solve the problem of his education. If the young intern becomes disillusioned with medicine because of its present limitation, he should take refuge in recent discoveries and he should resolve to take an active part in medicine of the future.

THE INTERPRETATION OF SYMPTOMS

The house staff should take full advantage of the opportunities for taking good histories, for making thorough physical examinations and for developing the art of medical logic in drawing conclusions. Cultivation of the art of concise and lucid description of the patient is essential. Notwithstanding the remarkable development of technical devices in recent years, the importance of the interpretation of symptoms remains as great as ever before. As a result of the better understanding of the mechanism of such symptoms as pain, dyspnea, orthopnea, vomiting, cyanosis, fever, chills and headache, today we are able to use these symptoms as tools in probing into the depths of the body. Intelligent interpretation of symptoms will often dispense with laborious, expensive and painful laboratory tests. Progress notes should give detailed and clear statements of the changes taking place. It is advisable to acquire the habit of listening with an open mind to the patient and to persons around him. Their diagnostic or therapeutic suggestions are often helpful. I never hesitate to ask the patient what he thinks is wrong with him. His answer often reveals his attitude toward his disease. Follow-up of patients is essential in medical training. The intern should find time to attend necropsies. I believe in keeping a record of one's mistakes with an explanation of the reasons for them. Periodic examination of such records reveals illuminating facts on one's shortcomings.

The use of the laboratory requires special consideration. The important function of laboratory procedures in the study and the care of the patient is an established fact. Their relative role, however, is still a subject of controversy. There are those elders who bemoan the abuse of the laboratory. This they hold responsible for

the rapid decline of the "art" of medicine. Some of them claim that laboratory tests are but crude substitutes for the more sensitive human senses. And there are, on the other side, the younger and inexperienced ones who expect the instruments in the laboratory to give them the diagnosis.

Now what is the true situation? The use of laboratory methods must be rational. The laboratory should answer specific questions which arise in the clinical study of the patient. They should be used as an objective check on the history and the physical observations. If properly used, laboratory observations are enlightening and they develop rather than hinder clinical acumen. Laboratory procedures have eradicated the clinician who could tell from feeling the pulse whether the patient had received digitalis, who could diagnose typhoid from the odor of the patient or carcinoma of the stomach from feeling a Virchow node. Some "clinicians" rightly point out with pride that clinical signs may precede structural changes. In fairness, however, it must be acknowledged that the opposite situation is frequent. The x-rays, electrocardiograms, the numerous chemical tests have made correct diagnosis possible with a frequency heretofore undreamed of. Laboratory methods made it possible to correlate clinical manifestations of disease with underlying physiologic processes, and this correlation in turn has made it possible, subsequently, to understand and interpret symptoms and signs without recourse to laboratory methods. Recent developments in chemotherapy in infections demonstrate the mutual importance of close correlation of laboratory data with the clinical state of the patient.

LABORATORY TESTS

The upshot of this problem then is that it is a mistake of equal magnitude to neglect indicated laboratory tests or, contrariwise, to use laboratory tests indiscriminately. In the best hospitals this situation is being recognized. Just because a test appears to be objective and because the results are expressed in curves or in figures, one must not take them too seriously. A poorly performed or an unreliable method is more misleading than no laboratory work. In recent years the abuse of laboratory methods has been the greatest in hospitals in the smaller communities. Curiously enough, practitioners of outlying communities have more respect for laboratory methods than the clinicians of university centers trained in these methods.

The indiscriminate use of laboratory methods is harmful to the prestige of the medical profession. It places unnecessary financial and emotional burden on the patient. Perhaps there is more than just a whimsical touch in the

poem recently written by Secretary of the Navy Charles Edison while he was an inmate of a hospital in Washington:

They hitch up wires to your leg,
On arm and back and chest
To see how goes the pump today
And if you need a rest.

They do a lot of other things
Indelicate to tell,
'Til you begin to speculate
"God, was I ever well."

The same sentiment was expressed by a patient who several weeks after returning home sent a box of candy to the junior in charge of the laboratory procedures at the Boston City Hospital. The enclosed note said "Dear Doctor: I am just recovering from the effect of your tests. I am sending this box of candy as a token of my appreciation." The medical son of an elderly physician once told me that his father used to say "The trouble with modern medicine is that it continuously takes away from rather than gives to the patient."

Obviously, sound medicine cannot be carried out without the support of the laboratory. But practice of good medicine is not possible without the dominating influence of the clinical study of the patient. In other words, one must not justify the complaint of the patient who, on changing physicians, said to Dr. J. B. Herrick "Doctor, I do hope you will be different from the other doctors whom I have consulted. I trust you will look less at the x-ray picture and more at me."

THE PSYCHIC COMPONENT

The importance of the study of the social and mental aspects of the problems presented by patients has already been emphasized to the student in the medical school. But in hospital practice this assumes even greater importance. Every disease has a psychic component. The specific problem is always the quantitative estimation of its role. The criticism that social and mental components of disease are neglected in the hospital is valid, but the judgment that these aspects of medicine cannot be adequately cultivated in hospitals is not sound. If a house officer learns to pay individual attention to the patient and to his problems and if he overcomes the tendency to become impersonal in the hospital, he will be successful in his future practice. And this truism holds also for visiting physicians and teachers regardless of whether they are on a full time or a part time basis. It is not correct to assume that just because one is a professional teacher one cannot be an excellent practicing physician. The lives of such clinicians as James MacKenzie, Wenckebach, Osler, Peabody and Thayer illustrate this point.

The harmful effect of acting in a routine manner in the hospital cannot be minimized.

Instead of being visualized as a frightened mother suffering primarily from worries caused by uncared for children left at home and only secondarily from pain of rheumatic fever, the patient becomes labeled as the case of rheumatic fever in the second bed on the left. If only the word "case" could be eliminated in hospital practice, a distinct advance would be made in the care of the patient. This tendency to handle patients in a routine way shows its most harmful effect in treatment. In the hospital, as in private practice, treatment must be individualistic. The use of a "precedent book" in treatment of patients may be justified in the early stage of the intern's career, but if every case of pneumonia is treated exactly the same, only a small portion of the therapeutic possibilities will be utilized. It is easy to become lost in the "scientific" method of treating a disease and to forget that in a given patient the specific disease is caused by a disturbance amenable to simple therapeutic procedures.

The young graduate must learn the art of communication with persons of different mental and social levels. For the first time he will learn the necessity of looking after not only the patient but also the relatives. For it is by no means always the patient alone who is sick; often the family as well is disturbed to the verge of illness.

AT THE BEDSIDE

Medical discussions at the bedside require careful consideration. Some able psychiatrists have warned of the psychic trauma of such medical talks and have advised that discussion of the patient's condition should always take place outside the sick room. But the situation, in my experience, is not so simple. The physician's contact with the patient in the hospital is too limited at best. If discussions at the bedside are conducted with discrimination and tact, they can be used as an effective therapeutic influence in reassurance. In many instances such indirect familiarization of the patient with his condition, with the reasons for the advised treatment and for the optimistic prognosis has a most beneficial result. A patient is more apt to resent too little rather than too much discussion of his condition.

The value of the patient's stay in the hospital will depend to a large extent on the instruction given to him and his family at the time of discharge. And yet after long, difficult and expensive study in the hospital, patients are frequently discharged without adequate instruction or education. This discharge instruction must be specific, intelligent and personal. It must consider the economic, social and specific family situation. Full cooperation with the social service workers and local physicians is essential. The intern in the hospital should

acquire the habit of respecting and keeping in close contact with the practitioners of the community. After the patient's discharge from the hospital, a detailed summary of the results of the hospital study should be sent to his physician.

A number of important specific problems will arise toward the end of internship. The decision as to whether to take a residency and the question of the type of residency most desirable will be difficult. Here I should like to mention only one point. Young physicians entering academic medicine should acquire good training in one or more of the medical sciences. Residencies offering opportunities for clinical investigation are often a good preparation not only for so-called academic medicine but also for the practice of medicine. Clinical investigation is an effective method of learning clinical medicine, and the mental discipline acquired in research can be effectively used in private practice in the future. I have had opportunity to discuss this problem with practicing physicians who have spent a number of years as residents in research laboratories, and they all felt the benefit of such training in their work in the community.

IN THE WORLD

The change from hospital to practice or to other positions is another momentous step. Although the fundamental nature of the problems encountered will remain the same, the objectives and the emphasis will change once more in the new situation. I should like, accordingly, to dwell briefly on certain points already discussed.

Let me state at the outset that, because of insufficient experience, my competence to discuss this stage of a medical career may rightly be doubted. And yet I have known able physicians and have learned to admire in them certain qualities. My acquaintance with these men has revealed that their achievements and greatness, like those of all people who do constructive work, depend not on a single quality but on a specific combination of many qualities, not all of which are admirable. Thomas Jefferson characterized the genius of Washington as follows: "His mind was great and powerful without being of the very first order; his penetration strong though not so acute as that of Newton, Bacon or Locke; and so far as he saw, no judgment was ever sounder. It was slow in operation, being little aided by invention or imagination, but sure in conclusion. . . . He was in every sense of the words a wise, a good and a great man. His temper was naturally high toned; but reflection and resolution had obtained a firm and habitual ascendancy over it. If ever, however, it broke its bounds, he was most tremendous in wrath. . . . On the whole, his character was, in its mass, perfect,

in nothing bad, in few points indifferent; and it may truly be said, that never did nature and fortune combine more perfectly to make a man great, and to place him in the same constellation with whatever worthies have merited from men an everlasting remembrance."

There are no set qualities which make great physicians. Indeed, characteristics of opposite nature may lead to equally great success in different fields of medicine. William Hunter was a great orator and a suave, fashionable accoucheur; his brother John was a tongue-tied genius of unusual originality with a tempestuous nature.

Diagnosis should be considered the first phase of treatment. Certain aspects of private practice simplify diagnosis; others make it more difficult. The practitioner knows his patient intimately and he sees him from time to time. He is familiar with his mental, emotional and bodily patterns. He has an opportunity to know the normal physical signs of his patient. Hence he possesses a well established normal base line. When a new symptom develops, he need not spend time with the "past history" or apply the machinery of fine search. He will not try to "cover himself" at the expense of his patient. He will not search for Koch bacilli in the sputum or take stereoscopic roentgenograms of the chest whenever slight fever and cough develop, just because cough is the earliest manifestation of pulmonary tuberculosis and of carcinoma of the lung. And yet to know when the combination of symptoms signals a disorder of minor significance and when it indicates the early manifestation of illness of a serious nature requires keen insight and mature judgment. This is the most crucial test of the physician's ability.

THE PATIENT'S WELFARE

When faced with diagnostic difficulties the practitioner is influenced by practical considerations, such as the relative frequency and the therapeutic approachability of the diseases suspected. The patient's welfare receives first consideration. He is particularly desirous of avoiding a mistake in diagnosis, which in turn would deprive the patient of therapeutic benefit. The possibility of missing the diagnosis of a case of incipient pulmonary tuberculosis, of a meningioma or of an islet tumor of the pancreas will prey on his mind more than failure to diagnose malignant nephrosclerosis or dissecting aneurysm. In his diagnostic work he takes great advantage of negative as well as of positive correlations. He knows that certain combinations of symptoms and signs rule out the possibility of certain diseases. In contrast to that of an inexperienced physician his search will be a well directed one.

Disease is usually the result not of a single factor but of a combination of factors. Overemphasis on single etiology of diseases has been the outstanding mistake of medicine during the past half century. The patient's complaint is frequently the result of the additive effect of several types of disability of independent origins. Thus circulatory collapse in a postoperative state is often the result of several chemical and physiologic factors. Severe dyspnea can be the result of the combined presence of a slight degree of anemia, rheumatic heart disease and bronchitis. Similarly, ataxia of pronounced degree may be caused by two disturbances of independent nature, such as syphilitic tabes and combined system disease of nutritional origin. A prolonged toxic psychosis following bronchopneumonia may be brought about only in part by the central effect of the infection. The pre-existing personality, alcoholism and arteriosclerosis can play roles of equal importance in etiology. Hence, real diagnosis requires a painstaking analysis and keen evaluation of the relative role of all the active etiologic factors and all the bodily changes. How nearly correct one is depends on how deeply one wishes to look. To attach a medical label is not equivalent to making a good diagnosis; and correct prophesy of observations in the deadhouse is but an anatomoclinical correlation, and this is not identical with diagnosis of the patient as a psychophysical unit.

Frequently a correct diagnosis cannot be made because the disease has not advanced far enough. Diagnostic suggestions or arbitrary conclusions should not be mistaken for established diagnoses. Faced with such diagnostic difficulties it is essential to maintain painstaking search and an unbiased mind. One should continue to observe the patient day after day. Preconceived ideas and lack of thoroughness and of diagnostic zeal are the most frequent causes of misdiagnoses. As far as possible the diagnosis should always be a positive one, and not one made only by exclusion. This is particularly important in cases of psychoneurosis. Failure to find evidence of "organic disease," so called, is not sufficient to justify the diagnosis of neurosis. For such a diagnosis, as for other disease, positive and specific etiologic factors and characteristic content of the disease must be found. There are conditions, such as certain types of infection, neoplastic disease, fractures, neurosis and diseases of the liver and bile ducts, which are apt to offer particularly great diagnostic difficulties.

TREATMENT

Diagnosis is but a preparation for treatment. Treatment consists in the application of physical, chemical and abstract measures. The latter includes the general relation between

patient and physician, because the physician himself is a therapeutic agent. Hence one cannot separate what is often called the art of medicine from the use of therapeutic measures. The conduct of the physician, what he says and what he does not say have frequently as much to do with treatment as the administration of drugs, if not more.

The time of therapeutic nihilism is over. As recently as 1931 an able physician advised students that, "with the tendency to recover which is inherent in every one, you need not be fussy about just what medicine you can use." But the situation has been radically changed by the discovery of effective hypnotics, analgesics, thyroxine, adrenal and pituitary hormones, insulin, liver extract, vitamins, sulfanilamide, atabrine, carbarsone, prostigmine and specific serums, to mention but a few. Even neurology and psychiatry are yielding to therapeutic approach. We are living in the beginning of an era of the greatest therapeutic triumphs in the history of medicine. This newly acquired knowledge, however, places increased responsibilities on the physician because all therapeutic agents not only can do good but also can be harmful. The practice of medicine has ceased to be but a supervision of the play of the forces of nature. It is rapidly becoming a field of biologic engineering of active intervention. In order to practice good therapeutics the physician must know the beneficial as well as the untoward effects of the physical and chemical agents. He must be as individualistic in treatment as he is in diagnosis. He must have at his disposal all the measures available for the treatment of the same ailment, so that if one fails he may try another. The supervision of the treatment must be close, and too much must not be relegated to nurses. All the patient's complaints should be taken seriously and treated. The importance of the treatment of symptoms is often underestimated. The art of providing sound sleep for a restless patient with pneumonia or with coronary thrombosis may be a lifesaving measure.

THREE IMPORTANT THINGS

The patient will base his opinion of his physician's efficiency on the clarity and specificity of the therapeutic directions. Language is an important vehicle of therapeutic remedies. In giving instructions the physician must keep the initiative. He must not allow himself to be unduly influenced by a dominating attitude on the part of the patient. It has been pointed out by many able physicians that a physician "may be a mine of information, but if he cannot or will not sit down and work out with a nervous patient a suitable diet to overcome his constipation and ducks away from headache and

backache, constipation and neurosis, he will not be and cannot be a successful practicing physician." One must not project one's impatience and ignorance on the patient. In describing certain difficult surgical problems, Dr. John Homans claims facetiously that pain in the left lower quadrant is one of the most baffling symptoms known in surgery. According to him, this usually occurs in females of almost unparalleled dreariness. "If you feel that the problem is not soluble ahead of time, it is hard to keep your discipline and to remain thorough and still harder not to become a little irritated and end by taking out your irritation (and shortcomings) on the patient. You tend to forget three important things: that (1) you have held yourself out as a doctor, (2) the patient is paying for your services, and (3) even women with unaccountable pains in the lower left quadrant are also God's creatures."

Before using a placebo be sure that you know your patient. Some of them are anxious to have and are unable to live without a tonic or pill, while others consider it as an insult to their intelligence. Before advising surgical treatment, be certain that all simpler measures are ineffective. Select competent surgeons. Mortality rates depend not as much on the type of operation as on the type of surgeon. There are situations in both medicine and surgery in which application of measures accompanied by danger is justified. Before deciding on heroic measures, however, it is wise to share the responsibility of such a decision with other physicians.

The application of psychotherapy is indicated for every patient regardless of the disease. There is a mental element in every disease. Furthermore the psyche represents the summit of integration and the cortex has an intimate connection with all organs of the body. Reassurance and gaining of confidence are the starting points of psychotherapy; only after this has been accomplished should psychic treatment of a specific nature be taken up.

The problem of what to tell the patient is a much discussed one. Set rules cannot be followed. It is advisable to size up the patient and to feel one's way a little before starting an important talk. Obviously not all the implications of a disease should be discussed with the patient or, as a rule, even with relatives. The patient should be relieved of as much care as is feasible, and he must not share the worries of the physician. One of the primary functions of the physician is general leadership and guidance in situations usually considered emergencies by the patient. Make the patient actively happy and anticipate his desires and fears. What the truth is, often we physicians do not know, and

naked truth may be untruth. It is only rarely justifiable to tell a patient that he is suffering from an incurable disease. All sick human beings, and ill physicians in particular, wish to maintain hope. The knowledge of approaching death is depressing mentally and often throws the most courageous patient into periodic panic. Physicians frequently face difficult psychologic situations, and the solution of these may appear unattainable. On such occasions move slowly and time will help to solve the problem. As a disease progresses to a grave stage, remarkable psychologic changes take place in the patient. His interest rapidly narrows down and his suffering usually decreases. Very sick patients are not inquisitive, and they do not suffer. If you ask a patient on the verge of death how he is, he will reassure you that he is comfortable and at peace.

ETHICS

Ethics and the art of medicine are interdependent aspects. This is not the place to discuss medical ethics. Suffice it to state that a good physician has the same qualifications as an ideal man in his relation to his fellow men. Such a physician need not match his conduct, letter by letter, to the codes and paragraphs of the rules of ethics of medical associations. It is said that a minister once defined a gentleman as "one who has more regard for the rights of others than for his own feelings and for the feelings of others than for his own rights." This is an ideal definition of medical ethics to strive for.

From what has been said it follows that the art of medicine is not such a mysterious quality as some physicians would make us believe. The art and science of medicine cannot be separated because the human quality and aptitude on which the art depends can be effective only when trained in the science of medicine. Indeed, the time may not be far distant when the human relations active in the art of medicine will be defined scientifically.

FUTURE TRENDS IN MEDICINE

All of us in medicine are keenly interested in the future because medicine is as dynamic and vital as the human race. The dominating desire of the profession is to serve and to improve this service. Not only are new methods constantly devised, but new trends take place in professional activities from time to time. Hence all physicians must remain flexible and they must face the future fearlessly and with an open mind.

It is probable that the discovery of new diseases and the nosologic approach are gradually reaching their limits. Advance will come mainly from the better and deeper understanding of known diseases and of the already defined problems. This field belongs primarily to the clinical

investigator. Thus there exists in medicine a situation not unlike that in the broader economic and social problems of the world of today. As President Compton has recently stated, "The geographical pioneer is now supplanted by the scientific pioneer, whose thrill of discovery or urge for reward are no less keen, and whose fields for exploration appear to be unlimited. Without the scientific pioneer our civilization would stand still and our spirit stagnate; with him, mankind will continue to work toward a higher destiny."

In a sense medicine, like the arts, is greatly influenced by the spirit of the times. Thus the desire for freedom in the nineteenth century yielded simultaneously the impressionist in art and the psychoanalytic school in medicine. As demanded by the "zeitgeist," new aspects are constantly added to the structure of medicine. In ancient Greece with the foundation of the Hippocratic Code medicine became organized for the first time on the basis of ethics and became separated from religious cults. Scientific medicine was added less than a century ago as an effect of the free scientific inquiry of the eighteenth century and, as a result, medicine has undergone a technologic revolution. One of the most important acquisitions of modern medicine is the responsibility for the health and social welfare of the public. The first recognition of such an obligation to society at large dates back to the end of the last century, but it is now that the practical implication of this aspect of medicine is becoming particularly pressing.

PRIVATE PRACTICE

Will this emphasis on social welfare abolish private practice? One can answer this question with a definite "no." It is probable, however, that certain departures from present day practice will be inevitable. The human desire to seek privately the attention of able physicians existed long before the development of organized society. Economic and political changes cannot abolish this deeply rooted instinct. But, as the result of revolutionary changes in the economic and cultural status and in the social organization of society, rearrangements and improvements in medicine, as in other walks of life, are essential. If these are made prudently they will open up new fields and will redistribute the functions of physicians according to their interest and ability. The economic status of physicians will improve.

"Socialized medicine" of the future will be but an accentuation of trends already existing. In a closely interwoven society of the future the supervision and aid of the normal mental and bodily development of the individual will become of increasing importance in the life of

nations. The activity of the medical profession will therefore have to come into more intimate contact with organizations devised to improve human happiness. Certain trends already in practice in pediatrics could be profitably extended to adult medicine. Such "social" practice of medicine, paradoxical as it may sound, will bring physicians closer to the individual. Thus medicine of the future will play an increasingly important role in the life of the individual as well as in the welfare of society.

The romantic reverence for the old time practitioner, rich in qualities that made him the family adviser, confidant and friend, is fully

justified. I am bold enough to claim, however, that there is in the making a young medical generation which, after a difficult and somewhat bewildering period, will be equally rich in these human qualities but which, in addition, will be able to do more for the welfare of the patients than their predecessors. The young practitioner of the future will be willing to give himself, will understand the springs of human emotions and will be able to give as good care in the majority of medical diseases as the best specialists of today. This new practitioner will once more have the confidence and the respect of the community.

Comments and Reviews

MEDICAL EDUCATION OF THE FUTURE

Abstract of an article by Sir John Parsons, F.R.C.S., published in the Lancet, March 2, 1940.

At present the medical curriculum tries to cater to both general practitioners and specialists. The curriculum should be strictly designed to turn out the best type of general practitioner. Many will say that it is impossible to prune the curriculum without disastrous results. This is a fallacy which depends largely on the old fashioned idea that it is impossible to teach applied science scientifically except on an elaborate basis of pure science; yet there are thousands of physicists and engineers who can use the calculus practically without any profound knowledge of pure mathematics, and thousands of people who make good use of instruments the working of which they do not understand.

The fundamental principle which must permeate the whole curriculum is that every subject shall be taught with the ultimate aim of producing a first class general practitioner kept steadily in view. The anatomy and physiology syllabuses should therefore be drastically revised, not by anatomists and physiologists, but by surgeons, physicians and general practitioners who are conversant with the requirements of clinical medicine. It is probable that in these subjects new and carefully expurgated textbooks would be helpful. The same remarks apply to bacteriology and to a less extent to other subjects. It is, however, in the practical laboratory classes that the most time could probably be saved. This suggestion applies least to anatomy, though even there dissections need not be as minute as is customary and more use might be made of specimens specially prepared to demonstrate anatomic relations of most importance to the general practitioner. More

time can be saved in the practical classes on physiology, histology and bacteriology. No general practitioner and very few consultants cut their own sections, make their own cultures or do their own Wassermann tests and there is no good reason why the student should waste his time doing what he cannot do efficiently. The same principle applies to clinical laboratory investigations. The student should be compelled in the first instance to examine patients and make tentative diagnoses without the aid of elaborate clinical, laboratory and other tests. Having done so he should learn what further specialist examinations and what special laboratory investigations are indicated for the more complete elucidation of the cases.

GENERAL PRACTITIONERS SHOULD TEACH STUDENTS

The clinical teaching of undergraduate students should be entirely in the hands of those members of the visiting staff who are in active private practice. They at least have some knowledge of how to deal with patients other than the ordinary hospital patient. Even their experience is not ideal for the purpose and it would be an excellent innovation if good general practitioners could be attached to the staff to instruct the students in the routine of general practice and the manifold vagaries of private patients. Only those who have had a few years' experience of general practice can appreciate the inestimable advantage of dealing with patients as a consultant; and only they can realize the *faux pas* which the best of consultants can make in the presence of private patients.

A DEPLORABLE MISTAKE

It was a deplorable mistake by the board of education to put the control of undergraduate teaching in the hands of whole time units. These should be confined to research work and postgraduate teaching. The unit system is

admirable in its proper sphere. It accounted more than anything else for the success of the Johns Hopkins Hospital in Baltimore some years ago but, carried to excess, as it was in that hospital, it inevitably broke down and had to be modified. In my opinion the whole time professor should be entirely a research worker and postgraduate teacher. He will therefore belong to the type of man, like the physiologist or other pure science professor, who through love of research is willing to live on a moderate income. It can only rarely be the case that such a man will devote himself to surgery or obstetrics. Hence these should be part time professors, and the only whole time ones should be those of medicine and such branches of medicine as attract the same type of man as the physiologist.

The control of medical education should be in the hands of a specially selected council. The qualifying examinations should be confined to the essential requirements of sound general practice, for which purpose it should number among its members general practitioners of wide experience. For the higher postgraduate examinations, committees should be appointed to report to and confer with the council.

THE RELATIONSHIP OF HOSPITAL TO MEDICAL SCHOOL

Condensation of an address by Dr. Alau Gregg, director of medical sciences, the Rockefeller Foundation, delivered at the seventieth anniversary of the founding of the Children's Hospital, Boston, and published in the Harvard Medical Alumni Bulletin, October 1939.

In America, despite our tendency to over-organization, there are working human relationships which are essentially simple and direct. In the relationship between hospital and medical school we might take the human arm as a model with its greater usefulness because of the joints, with one rigid part articulated with another, and motive power, like muscles, fixed in both of the separate but articulated parts. The hospital and the school are not ankylosed into a single stick; they work better apart, with freedom, individuality and independence. The two ends of a muscle are not attached to the same bone, nor is the motive power of a hospital effective if limited to the hospital alone; it must be attached to and acting on neighboring entities.

In the relationship of hospital and medical school what are the qualities which each possesses and which are of value to the other? The medical school is on the river of youth. Out of the medical school flows a river of young men who make the present more significant because of their future. You can select from the best of these young men and so a connection with

the school assures you an advantage in one of the primary tasks of a hospital—the renewal and recruitment of a superior staff. Good men are what matter. Many a research institute that is devoid of teaching connections misses the advantage which is offered by contact with a medical school in the recognition and recruitment of the abler men of the oncoming generation.

Human beings try to do their best when faced with youth for whom they are setting an example. The teaching activities of a hospital thus tend more than almost any other factor to elicit the best efforts from the hospital staff. And as a reward for this extra effort a hospital with close teaching affiliations extends its influence far beyond its staff and its patients. And so we see the medical schools, which offer youth, continuously refreshing the hospital, extending the radius of its influence, holding the staff to concert pitch.

And now what is the unique quality of the hospital? Hilaire Belloc, in a book now unhappily out of print, wrote an excellent account of another human institution, the road. He traces the origin of the road in the early English path which followed its haphazard course in response to local need, avoiding rivers, forests and marshes. The trackways of earliest England were primitive, the distances short, the cost of maintenance borne locally. How many years these scant roads were in such limited use we do not know, but we know that when the Romans came they brought a totally new concept of the road. No one who has seen a Roman road will ever forget it. The Romans built roads with overwhelming insistence on their true function to provide swift, easy, direct, safe, permanent travel. The Romans ignored the effort necessary to build their magnificent roads, or at least they spread that effort over the entire province, charging it to military necessity and the cost of government and the common welfare.

By now you must have seen the analogy. The Roman road of medicine is the hospital. The hospital does for medicine what the Roman road did for travel. It does not stop with trivial, immediate and short spanned need. The hospital insists on rendering the optimum in the care of disease, the swift, easy, direct, safe, permanent, far reaching care of the sick. Like the Roman road builders, the founders of a hospital do not cavil at the cost but fix their eyes on the effectiveness of the service of the hospital as a hospital. The hospital is to the history of medicine what the Roman road was to the history of transportation, an immense step forward.

It is the unique contribution of the hospital that it permits physicians to give undivided

Medical College News

Medical schools, hospitals and individuals will confer a favor by sending to these headquarters original contributions, reviews and news items to be considered for publication in the Student Section.

Ninetieth Annual Senior Banquet

The junior class of St. Louis University School of Medicine conducted the ninetieth annual senior dinner dance, April 3, at Norwood Hills Country Club in St. Louis County. Nearly 650 faculty members, alumni and their wives and students attended to pay tribute to this year's graduating class. The committee was headed by Leo J. Hofschneider, Rochester, N. Y. Patrons for the dinner included Dr. and Mrs. John Auer, Dr. and Mrs. Goronwy O. Broun, Dr. William T. Coughlin, Dr. Joseph Grindon, Dr. and Mrs. Ralph A. Kinsella, Dr. and Mrs. Alexander J. Kotkis, Dr. Fullerton W. Luedde, Dr. Alphonse McMahon, Dr. and Mrs. Leroy Sante, Rev. A. M. Schwitalla, S.J., Dr. and Mrs. Carroll Smith, Dr. and Mrs. Hyman I. Spector, Dr. and Mrs. William H. Vogt Sr. and Dr. and Mrs. John Zahorsky.

Symposiums at Columbia on Shock and Syphilis

Four senior medical students were speakers in a symposium on shock at Columbia University College of Physicians and Surgeons, New York, under the auspices of the local chapter of Alpha Omega Alpha, April 8. Their discussions of the historical background, physiology, clinical aspects and therapy were followed by discussions by Dr. Virgil H. Moon of Jefferson Medical College of Philadelphia; Dr. John Scudder of the Rockefeller Institute for Infectious Diseases, New York; Dr. Norman E. Freeman of the University of Pennsylvania, Philadelphia, and Dr. Dana W. Atchley of Columbia University College of Physicians and Surgeons.

A symposium on syphilis was held under the auspices of the college, April 12-13. The speakers at the first session were Drs. Joseph G. Hopkins, Haven Emerson, James L. Miller, Dabney Moon-Adams, Paul Gross and A. Benson Cannon. On Friday and Saturday afternoons demonstrations were held in the Vanderbilt Clinic. Saturday morning Dr. Harold N. Cole, of Western Reserve University School of Medicine, Cleveland, discussed latent syphilis; Dr. John A. Kolmer, of Temple University School of Medicine, Philadelphia, "Interpretation of Serological Tests for Syphilis"; Dr. Edwin P. Maynard Jr., Long Island College of Medicine, Brooklyn, "Cardiovascular Syphilis," and Dr. Louis Chargin, New York, treatment of early syphilis by the continuous drip method.

Mississippi Premedical Students Awarded Scholarships

Tulane University of Louisiana School of Medicine, New Orleans, has announced the award of Commonwealth Fund scholarships to premedical students from Mississippi who will join the Tulane freshman class this fall. The premedical students are James L. Booth, Longstreet C. Hamilton, of Jackson, Miss., Robert S. Ellis, Drew, Miss., and Martin B. Harthcock Jr., Clarksdale, Miss. The scholarships provide \$1,000 a year for four years; the student agrees that after graduation and on completion of a two year internship he will return to Mississippi and practice medicine in a rural community for at least three years. The four students were selected by the committee of the faculty of Tulane from some forty men who had submitted applications. These scholarships are provided each year as part of a program to better rural

medical service, which the Commonwealth Fund of New York City has undertaken in Mississippi with the cooperation of the Mississippi State Board of Health and the Tulane University.

Encouraging Tufts Students to Write

The Scientific Forum and the Medical History Club at Tufts College Medical School, Boston, are student organizations that give undergraduates an opportunity to present papers. Members of the Scientific Forum were guests, March 10, at the home of Dr. Benjamin Sachs, professor of ophthalmology; Mr. Edward J. Howley, '41, presented a paper on "Cataracts" and Mr. Paul J. Coughlin, '41, a paper on "Optic Neuritis." The Tufts Medical History Club met at the Metropolitan State Hospital in Waltham one Sunday recently and heard Mr. George A. Dodge, '41, read a paper on the "History of Insanity," and Mr. Jerry Saltz, '42, a paper on "History of Homeopathy in America." The superintendent of the hospital, Dr. Roy D. Halloran, invited this group of students to be his guests.—The William Harvey Society at Tufts Medical School was addressed, April 5, by Dr. Emil Novak, associate professor of obstetrics, University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, whose subject was "The Endocrine Influence of Certain Ovarian Tumors."

Dr. Braasch Addresses Chicago Students

Two hundred student and graduate members of the Alpha Kappa Kappa medical fraternity attended the annual Tri-Chapter Banquet at the Chicago Athletic Club, April 4. Dr. William F. Braasch, head of the Division of Urology at the Mayo Clinic, Rochester, Minn., discussed "Future Trends in Medicine." Dr. Herman L. Kretschmer, clinical professor of genitourinary surgery, Rush Medical College, Chicago, was toastmaster. Entertainment was furnished by Maxwell F. Kepl, '39, Northwestern University School of Medicine, at the piano, and by Dr. Chester C. Lockwood and students Stearley Harrison, '40, Philip N. Hogue, '40, Perry Sullenberger, '43, and Richard Houlihan, '43, who sang. Among the graduate members present were Drs. Percival Bailey, professor of neurology and neurologic surgery at the University of Illinois College of Medicine; Robert W. Keeton, professor of medicine, University of Illinois College of Medicine; Charles E. Galloway, assistant professor of obstetrics and gynecology, Northwestern University School of Medicine, and Dr. Frank B. Kelly, associate clinical professor of medicine, Rush Medical College. Student James W. Pick, who will receive both his Ph.D. in anatomy and his M.D. in June at Northwestern, was chairman of the banquet committee.

Microscope Selected by Virchow

During his last illness, Dr. Joshua M. Van Cott, Brooklyn, gave his microscope to Dean Jean A. Curran of Long Island College of Medicine, expressing the hope that he could devise some way of continuing its many years of usefulness. This microscope is a fine instrument picked out at the direction of Dr. Rudolf Virchow during Dr. Van Cott's visit to Berlin for postgraduate work over fifty years ago.

Temple University News

At a fireside chat at the Phi Rho Sigma fraternity house on Washington's birthday, Dr. Isadore W. Ginsburg, resident in medicine, spoke on the methods of study one should pursue to get the most out of the student years; in the following week, Dr. John Lansbury, associate professor of medicine, spoke on "Medical Ethics." Dr. William Edward Chamberlain, professor of radiology and roentgenology, addressed the Phi Chi fraternity at Temple, February 23, at the annual dinner and dance, on "Medical Economics." Among the guests were Dr. Francis F. Borzell, president of the Pennsylvania State Medical Society, Dr. Rufus S. Reeves, president of the Philadelphia County Medical Society, and Dr. William N. Parkinson, dean of Temple University School of Medicine. Dr. Frank H. Lahey, of Boston, addressed the medical students, February 29, on "Management of Thyroid Diseases" on the occasion of the annual midwinter dinner of Temple University Medical School Alumni; special clinics were held in the various amphitheatres.

First McDowell Lecture at Louisville

The Ephraim McDowell Lectureship has been established at the University of Louisville School of Medicine, Louisville, Ky., by the Phi Beta Pi medical fraternity. The first lecture was given by Dr. M. Herbert Barker, Chicago, March 6, at the Louisville City Hospital, on "Modern Pioneers in Peripheral Diseases." Dr. Irvin Abell gave a résumé of the life and work of McDowell.

Convention of Premedical Students

The sixth biennial convention of the national honorary premedical fraternity Alpha Epsilon Delta was held at the University of Oklahoma, Norman, March 21-23, with representatives from twenty-eight chapters in nineteen states. The address of welcome was delivered by Prof. Aute Richards, director of the school of applied biology, University of Oklahoma, and the response by Prof. Kenneth B. Stevens of Central College, Fayette, Mo. The delegates made a tour of inspection of the University of Oklahoma School of Medicine, Oklahoma City. Among the speakers at the banquet held in Oklahoma City Saturday evening were Gen. Robert U. Patterson, formerly surgeon general of the U. S. Army and now dean of Oklahoma University School of Medicine; Dr. Wendett McL. Long, and Dr. Henry H. Turner.

All Seniors Have Internships

The *Long Islander Medical*, which is issued by the Alumni Association of the Long Island College of Medicine, Brooklyn, announces that every member of the senior class (1940) already has been appointed to an internship.

The Contin Society

The newly appointed dean of New York Medical College, Dr. Ferdinand C. Lee, was chosen by the students to receive honorary membership in the Contin Society, an honorary scholastic society of the New York Medical College and Flower-Fifth Avenue Hospitals, which held its annual dinner in New York on March 1. Among the student members elected to the honorary society were Robert C. Berman '41, Sol Commins '40, Joseph B. Cramer '41, Herbert Fanger '40, Milton Kramer '41, Anne Strax-Robbins '40, Leon Ryaek '40, Louis J. Tedesco '41 and Irving Weeksell

'40. The annual Contin lecture on this occasion was delivered by C. W. Coates of the New York Zoological Society, who spoke on "Aquarium Life and the Behavior of Fishes." The alumni secretary of the Contin Society is Dr. Abner I. Weisman, New York.

Johns Hopkins Students After Twenty-Five Years

The class of 1915 of Johns Hopkins University School of Medicine held a reunion at the Elkridge Club, Baltimore, February 24, for which occasion reminiscences held the spotlight. "Can you recall matriculation into the clinics—Thomas, Barker, Thayer, Fletcher and Hamman? The evenings at Thayer's house; the afternoon teas at Barkers; the kindergarten sessions with 'Farmer John' Howland, but above all the chats with and the friendly advice of those we admired and revered? Do you recall the patients you were to examine and the diagnosis, the 'before and after' picture, the testimonials and the clinical evidence we had to evaluate? Who ever heard of such an examination? All but one of us made the grade, however. The celebration at our success started at Hanselman's and finished at the Rennert, where we showed Janeway and the others an evening at home that they never forgot." The booklet prepared for the reunion shows that Dr. Thomas M. Rivers, of the Rockefeller Institute for Medical Research, New York, is president of the class. There is a picture of the class at the time of graduation and a picture of each member of the class as at present, together with his accomplishments. Of the ninety that graduated, including six women, most of them spent the two years after graduation in hospitals, although one or two went directly into practice or administration work and several took teaching positions. Sixty-one served in the army during the World War, four in the navy, two in the Public Health Service—one with the State Department, two with the British army and one with the French forces. Thirteen have died: one was killed in France, two died of influenza in 1918, three of coronary disease, three of tuberculosis, one of post-influenzal encephalitis, one in a motor accident, one killed himself and one took an overdose of ergotamine tartrate. Of the seventy-seven living, ten are professors, twelve associate or assistant professors, six are associates, two are special lecturers and eight are instructors or assistants in medical schools. One is a dean of a medical school and one is director of the Rockefeller Institute for Medical Research. The average age at graduation of the class of 1915 was 26.8 years. Sixty-six of the members have married and have living 105 children; sixteen of the married ones have no children, twelve have one child, twenty-two have two children, eleven have three children and four have four children.

Meetings of the Scientific Forum at Tufts

The Scientific Forum at Tufts College Medical School, Boston, is in its tenth year as an undergraduate scientific society. This group meets from time to time at the homes of physicians on the faculty. The November 5 meeting, at the home of Dr. Philip E. Meltzer in Brookline, was addressed by Richard Lavigne, '41, on the "Treatment of Nose and Throat Infections in Infants and Children" and by Henry J. Myers, '41, on "The Tonsil Question." The November 26 meeting, at the home of Dr. Dwight O'Hara in Waltham, was addressed by Raymond Yesner, '41, on "Ringworm of the Hands and Feet" and by Alice Lowell, '41, on "Psychogenic Factors in Gastrointestinal Upsets." The December 10 meeting, at the home of Dr. Hyman Morrison in Roxbury, was

addressed by John J. Finn, '41, on "Rheumatic Fever" and by George A. Dodge, '41, on "Recent Advances in the Treatment of Pneumonia." The president of the Scientific Forum this year is Gerald F. Hogan, '41.

New Scholarships at New York

New scholarships to aid students at Cornell University Medical College were recently established by the Trustees of Cornell University. The Jeremiah S. Ferguson Scholarship Fund of \$5,000 memorializes a member of the original medical college faculty and secretary of the college since 1914, who died on June 30, 1939. The income of approximately \$200 a year will be awarded annually to outstanding students in the third and fourth years in need of financial aid. An anonymous gift of \$10,000 endows the Charles R. Stockard Scholarships, in memory of Dr. Stockard, who had been a member of the faculty since 1906 and who died, April 7, 1939.

Faculty Seminars at St. Louis

For nineteen years St. Louis University School of Medicine has held bimonthly faculty seminars in order to provide better interrelationship between the various departments of the school. The April 11 seminar included a paper by Dr. William H. Luedde entitled "Polaroid," with a demonstration of the planets through a 3 inch telescope, and a paper by Hugo Krueger, Ph.D., entitled "Experimental Analysis of the Action of Morphine on the Small Intestine." The seminars are preceded by a collation in the Medical School Cafeteria.

Scholarships at University of Pittsburgh

Two scholarships for women students in the University of Pittsburgh School of Medicine are offered by the Congress of Women's Clubs of Pennsylvania. Application should be made to Mrs. Henry Davis Stark, 408 Pennsylvania Avenue, Pittsburgh. Certain additional scholarships are available for students at the medical college, about which information may be obtained from Mr. J. G. Quick, registrar, University of Pittsburgh.

Student Lectures in New Orleans

Dr. Alton Oehsner, professor of surgery, Tulane University of Louisiana School of Medicine, New Orleans, addressed the interns at Charity Hospital, April 5, on "Varicose Veins."—Dr. Walter H. Judd, medical missionary from China, addressed the medical students of Tulane recently on the practice of medicine in China.—Dr. Reuben Kahn, University of Michigan, Ann Arbor, addressed the medical students of Tulane and Louisiana State University in March on the serologic diagnosis of syphilis.—The downtown students of Tulane were addressed on shock, March 16, by Dr. Alfred Blalock, professor of surgery at Vanderbilt University School of Medicine, Nashville, Tenn.

Undergraduate Honor Society at Louisiana

Announcement is made of the formation of an undergraduate honor society in the Louisiana State University School of Medicine, New Orleans, under the sponsorship of a faculty committee consisting of Dr. Beryl I. Burns, dean, Dr. Charles Midlo, and Dr. James D. Rives. The fourth year membership is limited to the upper tenth of the senior class and the third year membership to the three highest ranking students in the junior class. The organization is known as The Circle.

The membership from the fourth year class includes Edgar P. Breaux Jr., Roy A. Chatelain, Milton Flocks, Herman J. Halperin, Elmer C. Heringman, Abe Mickal and James T. Nix Jr. The three highest ranking third year students, whose election to The Circle has just been announced, are Emanuel Dubow, Spurgeon M. Wingo and Norman C. Woody Jr. The officers of the society are James T. Nix Jr., president, Abe Mickal, vice president, and V. P. Halperin, secretary-treasurer.

Lecture to Premedical Students

Dr. Howard G. Hill, chief of obstetrics at the County Hospital, San Bernardino, Calif., recently gave an illustrated lecture entitled "Obstetrics, Its History and Development," before members of the California Beta chapter of Alpha Epsilon Delta, national honorary pre-medical fraternity, at the University of Redlands, Redlands, Calif.

Duke to Have Department of Psychiatry

Through a grant of \$175,000 from the Rockefeller Foundation, Duke University School of Medicine, Durham, N. C., has established a department of psychiatry and mental hygiene to begin operation next September. Dr. Richard S. Lyman, lecturer in psychiatry at Johns Hopkins University School of Medicine, Baltimore, will head the new department. The Highland Hospital at Asheville, which was presented to the university recently by Dr. Robert S. Carroll, will be used for the department. Dr. Lyman graduated from Johns Hopkins in 1921, was associate in psychiatry there from 1923 to 1925, associate professor of psychiatry at the University of Rochester, N. Y., from 1925 to 1929 and spent the year 1930-1931 at the Institute of Experimental Medicine in Leningrad with Pavlov in the department of physiology. In 1931 he became associate professor of psychiatry at the National Medical School in Shanghai and from 1932 to 1937 held that position at Peiping Union Medical College. He has been at Johns Hopkins since 1938.

Juniors Appointed to Alpha Omega Alpha

Five members of the junior class of St. Louis University School of Medicine were appointed to the local chapter of Alpha Omega Alpha March 17: Clifford N. Crawford, Pasadena, Calif.; Lee George Allen, Litchfield, Ill.; Thomas J. Kelley, Los Angeles; John V. King, St. Louis, and Ralph J. Nold, Belleville, Ill. The local chapter of Alpha Omega Alpha conducts monthly student seminars and sponsors the annual William W. Root address, which this year was given by Dr. Edgar C. Ballenger, Atlanta, Ga., vice president of the American Urological Society, on "Sulfanilamide in the Treatment of Genito-Urinary Infections."

National Board Questions

At the examination of the National Board of Medical Examiners, Part I, September 11-13, 1939, the questions in bacteriology and immunology were as follows:

Answer any five questions: 1. Name four diseases which may be acquired by man from lower animals. Give the name of the pathogenic organism, name of animal, way in which human infections are acquired, and method of control of each disease. 2. Discuss the etiology of the common cold. 3. Outline the methods in use for the bacteriologic control of milk. 4. Contrast active and passive immunity. Select any disease and explain the relative merits of the two types of immunity in its control. 5. Mention the infectious material required, the method of characteristics of the organism in a smear preparation to be used in making a bacteriologic diagnosis of the following diseases: (a) pulmonary tuberculosis, (b) diphtheria, (c) gonorrhea, (d) anthrax, (e) Vincent's angina. 6. Describe briefly (a) the Neufeld "quellung" reaction, (b) agglutinin absorption, (c) variability of bacteria, (d) phenol coefficient, (e) serum sickness. 7. Name two tapeworms which infest man in the United States. How is the diagnosis of human infestation made from a specimen of feces?

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ENCEPHALITIS IN INFANTS AND CHILDREN

CAUSED BY THE VIRUS OF THE EASTERN
VARIETY OF EQUINE ENCEPHALITIS¹

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BOSTON

During a period of six weeks beginning Aug. 26 and ending Sept. 11, 1938, eight patients were admitted to the Infants' Hospital and to the Children's Hospital suffering from a severe form of encephalitis. Studies performed on one of these patients (J. M.) led to the identification of the causative agent as the virus of the eastern type of equine encephalitis and to the recognition of a new disease affecting man.¹ The occurrence of human encephalitis caused by the virus of equine encephalitis has been suspected since 1932.² These patients formed part of a group of approximately thirty-eight infants, children and adults in Massachusetts who probably suffered from this disease in late August and September 1938. The mortality rate for the entire group was 65 per cent. Sixty-nine per cent of those affected were under 10 years of age.³ The clinical and pathologic data of eight patients observed at the Massachusetts Memorial Hospitals during this outbreak have been recorded.⁴

This outbreak was preceded by some three weeks by an epidemic of the eastern variety of equine encephalitis among horses in southeastern Massachusetts. More than 90 per cent of the 248 horses affected died of the disease. It was also shown during the fall of 1938 that pheasants⁵ and pigeons⁶ suffer from this disease under natural conditions. The mode of transmission of the virus to man has not been established. There was an interesting chronological parallelism between the human and equine epidemics, with abrupt disappearance of both outbreaks at the onset of cold weather.

From the Departments of Pathology and Pediatrics of the Harvard Medical School and the Infants' Hospital and the Children's Hospital.

1. Fothergill, LeRoy D.; Dingle, John H.; Farber, Sidney, and Connerly, Marion L.: *New England J. Med.* **219**: 411 (Sept. 22) 1938. Webster, L. T., and Wright, F. Howell: *Science* **88**: 305-306 (Sept. 30) 1938.

2. Meyer, K. F.: *Ann. Int. Med.* **6**: 645 (Nov.) 1932.

3. Peemster, Roy F.: *Am. J. Pub. Health* **28**: 1403-1410 (Dec.) 1938.

4. Wesselhoeft, Conrad; Smith, Edward C., and Branch, Charles F.: *Human Encephalitis*, J. A. M. A. **111**: 1735-1741 (Nov. 5) 1938.

5. Tyzzer, Ernest Edward; Sellards, Andrew Watson, and Bennett, Byron L.: *Science* **88**: 505-506 (Nov. 25) 1938.

6. Fothergill, LeRoy D., and Dingle, John H.: *Science* **88**: 549-550 (Dec. 9) 1938.

Our purpose in this communication is to record a summary of the clinical and pathologic observations made on eight infants and children who were infected with the eastern variety of the virus of equine encephalitis. Recognition of the nature of the disease was made by actual identification of the virus, neutralization tests carried out on blood serums or pathologic examination (as indicated in the table).⁷ Autopsies were carried out on all five patients who died.

INCIDENCE AND MORTALITY

The ages of the group to be presented varied from 1 month to 7 $\frac{1}{12}$ years; seven of the eight patients, however, were less than 19 months of age. Five were girls and three were boys. Of the eight, two died within forty-eight hours after the onset of the disease and three within five to twenty days after the initial symptoms, and three survived and were discharged to their homes. The mortality rate in this small group of patients was 62.5 per cent.

SYMPTOMATOLOGY

In all instances there was a striking uniformity in the mode of onset, course and physical details. The onset was abrupt and pointed to an early and severe invasion of, and injury to, the central nervous system. Except with one patient, a 7 $\frac{1}{12}$ year old boy who complained first of malaise and headache, the onset was characterized by high fever, vomiting, rapid appearance of drowsiness or coma and finally twitching or severe generalized tonic and clonic convulsions, all becoming manifest in from twenty-four to forty-eight hours. At the time of admission each patient was acutely and gravely ill and presented on physical examination many of the following symptoms: drowsiness or coma, twitching or generalized convulsions, spasticity, bulging fontanel (in the infants), stiff neck, positive Babinski and Kernig signs, absent abdominal reflexes, cyanosis, and fever ranging from 102 to 106.4 F.

The hospital courses varied somewhat according to the duration of the illness and are described later in more detail. One phenomenon, which demanded attention but unfortunately through lack of sufficient investigation could not be explained fully, was the appearance in five of the patients of a peculiar non-pitting edema of the extremities, face and periorbital regions, occurring usually in from two to four days after the onset of the disease. Serum protein determinations on the blood of three of the infants exhibiting edema were 4.7, 5.4 and 6.4 Gm. per hundred cubic

7. Dr. LeRoy Fothergill and Dr. John Dingle of the Department of Bacteriology of Harvard Medical School and Dr. L. T. Webster and Dr. F. Howell Wright of the Rockefeller Institute furnished reports (indicated in the table) concerning the identification of the virus and the results of neutralization tests.

centimeters. Albuminuria was either absent or present in small quantities such as might be expected in acute febrile illness.

LABORATORY DATA

Lumbar punctures were performed on seven of the patients at the time of admission and on the eighth patient twelve hours after entry, at which time more

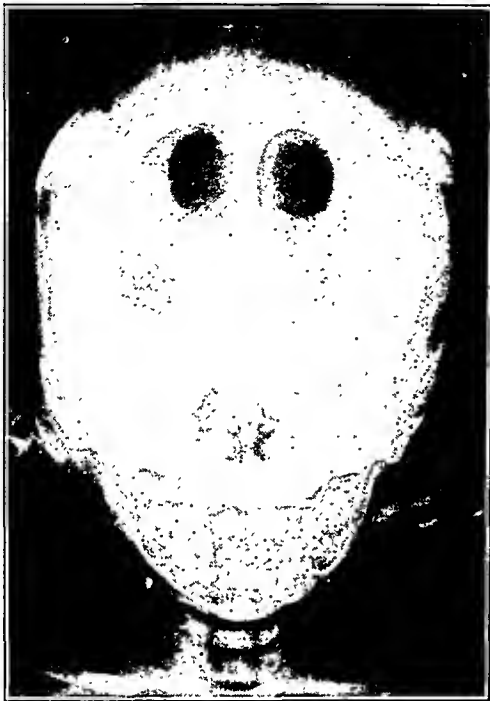


Fig. 1.—Encephalogram of R. R., a girl aged 5 months, taken four months after onset of equine encephalitis. There was marked spasticity of all extremities. Note great symmetrical enlargement of all ventricles.

definite neurologic signs were present. Six of these initial eight lumbar punctures revealed the spinal fluid to be under increased pressure; one showed decreased

and one normal pressure. Actual manometric determinations were not made because of either convulsive or struggling movements of the patient. The initial cell counts varied from 246 white cells per cubic millimeter (for a patient who eventually recovered) to 2,000 white cells (for a patient who died twelve hours after entry). The average cell count of the spinal fluid for the group was 1,000 white cells per cubic millimeter. In seven of the spinal fluids, polymorphonuclear cells predominated with percentages ranging from 60 to 100. All of the fluids contained increased protein (strongly positive Pandy tests), normal sugar values (qualitative tests), and no bacteria either on direct examination or on culture. When a patient survived the first few days of the illness the spinal fluid exhibited a reversal of the polymorphonuclear-mononuclear ratio and a rapid fall in the total cell count in from two to six days. Subsequent punctures on five of the patients revealed varying numbers of red blood cells which may have been caused either by trauma or by vascular complications of the disease.

The white blood cell count varied from 13,600 to 35,600 per cubic millimeter with a mean of 21,000. In the differential counts the polymorphonuclear cells ranged from 55 to 89 per cent. The hemoglobin levels and red blood cell counts were variable, and in some instances the low values were considered dependent on a faulty dietary regimen. Other laboratory examinations included blood cultures, blood Hinton and spinal fluid Wassermann tests, tuberculin tests, and roentgenograms of long bones for heavy metal lines; they were not remarkable.

COURSE

In consideration of the hospital course it is desirable to divide the patients into three groups: (1) those who succumbed within forty-eight hours after the initial symptoms, (2) those who survived the initial infection but who died later as a result of complications and (3) those who survived and were discharged home with residual neurologic disorders.

Equine Encephalitis in

Name	Age and Sex	Duration Before Hospitalization	Symptomatology	Day of Tap	Spinal Fluid					Sugar (Qualitative)	Culture
					Red Blood Cells	White Blood Cells	Percentage Polymorphonuclears	Percentage Mononuclears	Pandy		
J. M.	7 yr., 9 mo. ♂	36 hrs.	Headache, fever, vomiting, coma, rigidity, stiff neck	1	30	2,000	85	15	+	N	Neg.
				2	350	1,100	87	13	+	N	Neg.
M. S.	10 months ♀	24 hrs.	Fever, vomiting, stupor, cyanosis	1	+++	660	60	40	+	N	Neg.
				2	0	5,000	100	0	+	N	Neg.
M. M.	4 months ♀	48 hrs.	Fever, vomiting, coma, convulsions, spasticity, stiff neck, bulging fontanel	1	5	600	75	25	+	N	Neg.
				2	550	200	46	54	+	N	Neg.
				3	2	22	33	67	—	N	Neg.
W. S.	4 months ♂	48 hrs.	Fever, convulsions, coma, cyanosis, stiff neck, bulging fontanel	1	0	920	100	0	+	N	Neg.
				2	0	500	..	..	+	N	Neg.
				6	0	24	0	100	—	N	Neg.
C. J.	5 months ♀	24 hrs.	Fever, vomiting, convulsions, coma, cyanosis, bulging fontanel	1	0	490	64	36	+	N	Neg.
				2	80	200	0	100	+	N	Neg.
				3	150	60	5	95	+	N	Neg.
				20	++++	36	25	75	+	N	Neg.
R. R.	1 month ♀	24 hrs.	Fever, vomiting, coma, twitching, cyanosis, bulging fontanel	1	0	1,600	100	0	+	N	Neg.
				2	0	250	85	15	+	N	Neg.
				3	975	345	..	..	+	N	Neg.
				11	120	130	5	95	+	N	Neg.
M. C.	18 months ♀	48 hrs.	Fever, irritability, drowsiness	1	0	1,550	90	10	+	N	Neg.
				2	0	166	22	83	+	N	Neg.
				6	0	12	0	100	—	N	Neg.
D. A.	12 months ♂	48 hrs.	Fever, coma, convulsions, cyanosis, rigidity	1	540	250	60	40	+	N	Neg.
				2	860	170	92	8	+	N	Neg.
				3	30	212	40	60	+	N	Neg.
				4	825	43	13	87	+	N	Neg.
				7	00	4	0	100	+	N	Neg.

GROUP 1.—In this group were a boy aged 7 years 9 months and a boy aged 10 months. Each arrived at the hospital in a semicomatose state following an illness of from twenty-four to thirty-six hours' duration. Neither responded favorably to lumbar puncture and parenteral fluids; coma deepened, convulsions appeared, and they died in twelve and sixteen hours respectively with temperatures reaching 107 and 107.6 F. The clinical picture in this group is one of an acute fulminating infection not unlike that seen in infants and children dying of streptococcemia.

At autopsy, severe diffuse meningo-encephalitis was found in both cases. Marked cerebral edema and congestion were prominent features noted on gross examination. The reaction was more severe and the distribution of the inflammatory process more widespread in the brain of the older boy than in that of the infant. In both instances the spinal cord showed only edema and congestion. The exudate in both cases was predominantly neutrophilic in character. Over the base of the brain of the infant, covering the pons, the medulla and a large part of the cerebellum, was a purulent meningeal exudate of an extent found usually in pyogenic meningitis. Just after the death of this infant the spinal fluid contained 5,000 white cells per cubic millimeter, all of which were neutrophils. In neither case were bacteria found in the brain or meninges, either by staining or by cultural methods. Pulmonary edema and early interstitial pneumonia were noted in the lungs of both patients.

GROUP 2.—In this group were three patients. One was a girl aged 4 months who, after a characteristic onset of symptoms, entered the hospital in a comatose and convulsive state, continued to have intermittent convulsions, developed edema of the extremities and face, and died on the seventh day of illness. Of interest in this particular case was the decrease in the spinal fluid cell count from 600 white blood cells per cubic millimeter on admission to 22 per cubic millimeter on the third hospital day, and the rapid fall of temperature from 105.4 F. at entry to 98 F. just before death. The second patient was a boy aged 4 months whose course differed from that of the preceding patient only in that on the eighth day of his illness signs of bronchopneumonia developed. The white blood cell count of the spinal fluid of this infant likewise fell from a level of 920 on admission to 24 on the day preceding death; but the temperature, although declining toward normal, remained in the vicinity of 102 F., and death occurred on the ninth day of illness.

The third patient was a girl aged 5 months who died twenty-one days after the onset of symptoms. She remained in a comatose or convulsive state requiring parenteral fluids and gavage feedings until the fifteenth day of illness, when she began to show evidences of return to consciousness. The temperature, which had remained between 105 and 106 F., fell to 102. Improvement lasted but a few days; then, after a twenty-



Fig. 2.—Side view of the patient shown in figure 1.

four hour period of diarrhea, the temperature rose to 105 F. with a return of all the symptoms present on admission. Repeated lumbar punctures failed to reduce the tension of the fontanel more than temporarily. The last puncture, performed six hours before death, yielded grossly bloody fluid which contained but 36 white blood cells. Thrombosis of the longitudinal and tributary sinuses with associated recent massive unilateral subarachnoid hemorrhage was found at postmortem examina-

Infants and Children

Blood					Hospital Course	Outcome	Confirmation of Diagnosis
Hemo- globin, Percentage (Sahli)	Red Blood Cells	White Blood Cells	Percentage Poly- morpho- nuclears	Percentage Lympho- cytes			
75	3.3	19,900	89	3	Intermittent convulsions, coma, temp. 107 F., death	Death 48 hrs. after onset	Isolation of virus; pathologic examination
65	4.9	19,000	64	31	Intermittent convulsions, temp. 107 F., death	Death 48 hrs. after onset	Isolation of virus; pathologic examination
49	3.9	13,600	64	33	Intermittent convulsions, cyanosis, edema of face and eyes, coma, death	Death 7 days after onset	Pathologic examination
86	5.0	14,400	84	10	Intermittent convulsions, coma, pallor, edema of face and extremities, death	Death 8 days after onset	Isolation of virus; pathologic examination
69	4.1	20,600	75	14	Convulsions, pallor, edema of face and extremities, renewed severe convulsions 24 hrs. prior to death	Death 21 days after onset	Pathologic examination
72	5.6	16,200	54	30	Intermittent convulsions for 10 days, generalized rigidity, edema of face, pallor, return to consciousness, residual spastic paraplegia	Home 40 days	Neutralization test
52	4.5	30,500	90	10	Coma, convulsions, neck rigidity, return to consciousness in 6 days, residual spastic right hemiplegia	Home 26 days	Neutralization test
63	4.9	35,600	74	20	Coma, rigidity, return to consciousness in 48 hrs., residual spastic right hemiplegia	Home 42 days	Neutralization test

tion. There was evidence of diffuse encephalitis, although the acute process had subsided to a great extent. Demyelination was present in the numerous scattered areas of local destruction.

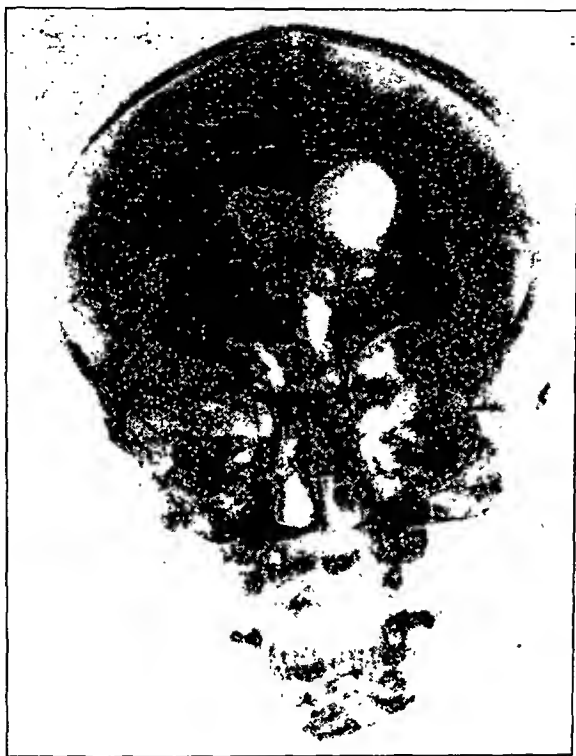


Fig. 3.—Encephalogram of M. C., a girl aged 18 months, taken four and one-half months after onset of equine encephalitis. There was spastic right hemiplegia. Note moderate enlargement of all ventricles. The left ventricle shows the greatest amount of enlargement.

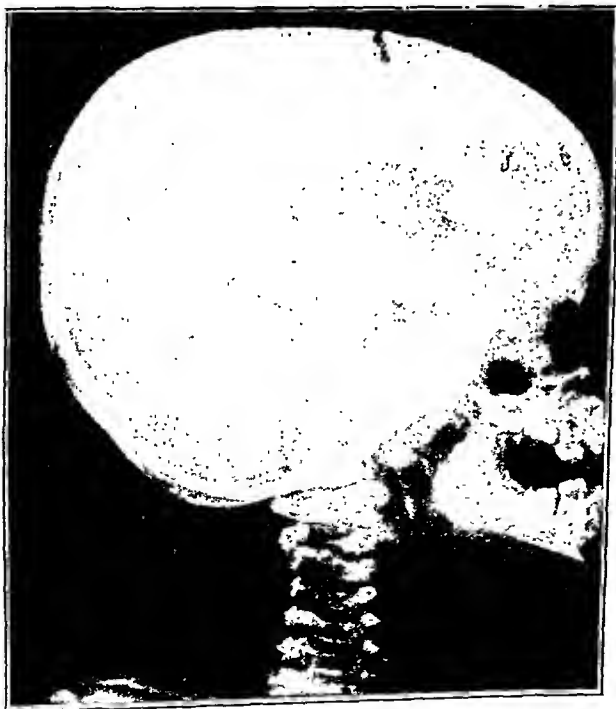


Fig. 4.—Side view of the patient shown in figure 3.

Numerous vascular lesions with thrombosis and necrosis of the walls of small arteries and veins were found throughout the brain. Although areas of nerve cell destruction and perivascular

infiltration were present in many areas throughout the cortex, the greatest involvement was found in the basal ganglia, the pons and the medulla.

Examination of the central nervous system of the two infants who died seven and eight days respectively after the onset of the disease showed changes similar to those found in group 1, with the exception that the exudate in perivascular spaces had changed from predominantly neutrophilic to a type consisting of lymphocytes and large mononuclear cells. The meningeal reaction was much less intense than that in the more acute instances of the disease.

GROUP 3.—In this group were three patients. The first was a girl aged 1 month who for twenty-two days remained in a state of coma, spasticity and intermittent convulsions and who manifested edema of the face shortly after the onset of symptoms. During this period transfusions, parenteral fluids and gavage feedings were necessary to maintain life. After twenty-two days she began to take nipple feedings and cried if disturbed. Examination at the time of discharge, forty days after the onset of her illness, revealed spasticity of all extremities, tonic neck reflexes, bilateral ankle clonus, Babinski signs and, in addition,

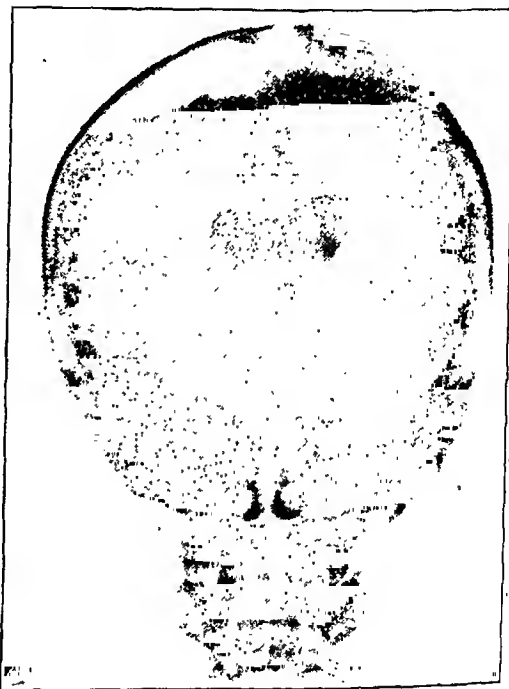


Fig. 5.—Encephalogram of D. A., a boy aged 1 year, taken six weeks after onset of equine encephalitis. There was spastic right hemiplegia. Note enlargement of the lateral and third ventricles, excess of air over the cortex and widening of sulci.

lack of interest in her environment. Three months later (at 5 months of age) she was readmitted for encephalography; roentgenograms revealed marked enlargement of all the ventricles (figs. 1 and 2). Physical examination at this time showed little or no change in the neurologic signs. A third admission at the age of 6 months because of a severe infection of the upper respiratory tract again failed to reveal improvement of the spastic state or advancement of mental development.

The second patient was a girl aged 18 months whose course was somewhat milder than that of the preceding infant. Coma, edema and convulsions on the right side lasted for eleven days, following which there was a slow return to consciousness with mild interest in the environment. Examination at the time of discharge to her home, twenty-six days after the onset of the illness, revealed a right spastic hemiplegia, partial deafness, impairment of vision and mental deterioration. She was readmitted three and one-half months later for appraisal and encephalography. During the interim she had improved to the extent of recognizing her family, using words and walking, although in an awkward manner, owing to the persistence of the hemi-

plegia. Psychometric studies revealed irregular mental development. Encephalograms demonstrated moderate enlargement of all the ventricles, particularly the left lateral ventricle (figs. 3 and 4).

The third patient was a boy aged 1 year whose convulsions ceased shortly after admission to the hospital but who remained comatose for one week. When consciousness returned, it was discovered that he had mild right spastic hemiplegia. He quickly regained interest in his environment and recognized his parents. Six weeks after the onset of illness, encephalograms were made. These revealed enlargement of the lateral and third ventricles and an excess of air over the cortex with widening of the sulci (figs. 5 and 6). When last examined, at the age of 14 months, there were persistence of the hemiplegia, inability to sit without support, and absence of effort to use even simple words.

TREATMENT

Treatment during the acute and subsequent phases of the disease was entirely symptomatic. For the severe convulsions a variety of sedatives was used, but perhaps the most efficacious was soluble phenobarbital in doses of $1\frac{1}{2}$ to 2 grains (0.1 to 1.3 Gm.) intravenously. Sulfanilamide was given either parenterally or by mouth (gavage) during the first two or three days until bacterial meningitis had been excluded. During the comatose state, parenteral fluids and gavage feedings were administered according to necessity. Later spasticity of the extremities and accompanying deformities were treated by physical therapy and the application of casts.

PATHOLOGY

A composite picture of the pathologic changes in the central nervous systems of the five infants and children

of nerve cells ranging from early changes of nucleus and cytoplasm to complete disappearance. The areas of dead and dying neurons contained cellular collections composed mainly of polymorphonuclear cells and microglial cells (fig. 7). The second type of change con-

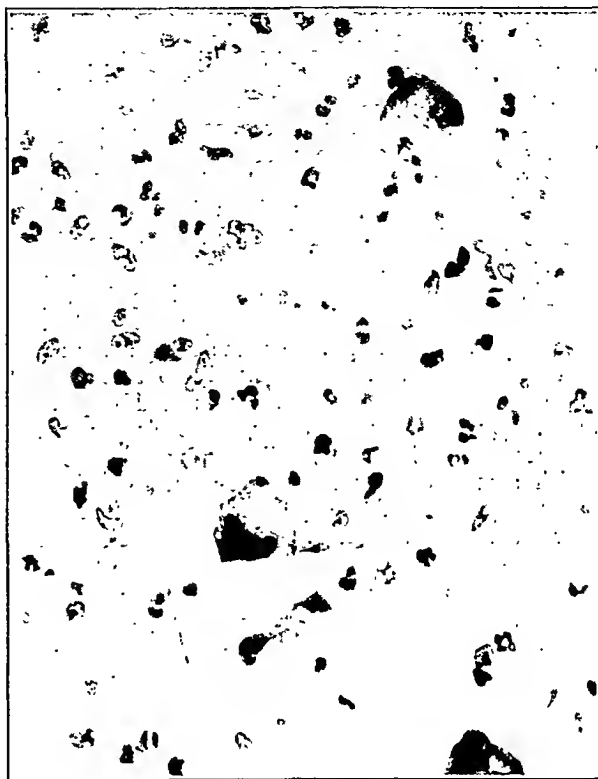


Fig. 7.—Section of medulla of boy aged 7 $\frac{1}{2}$ years who died forty-eight hours after onset of symptoms. Note destruction of nerve cells and cellular reaction consisting mainly of neutrophils and microglial cells. Eosin-methylene blue stain. Slightly reduced from photomicrograph with a magnification of 1,200 diameters.

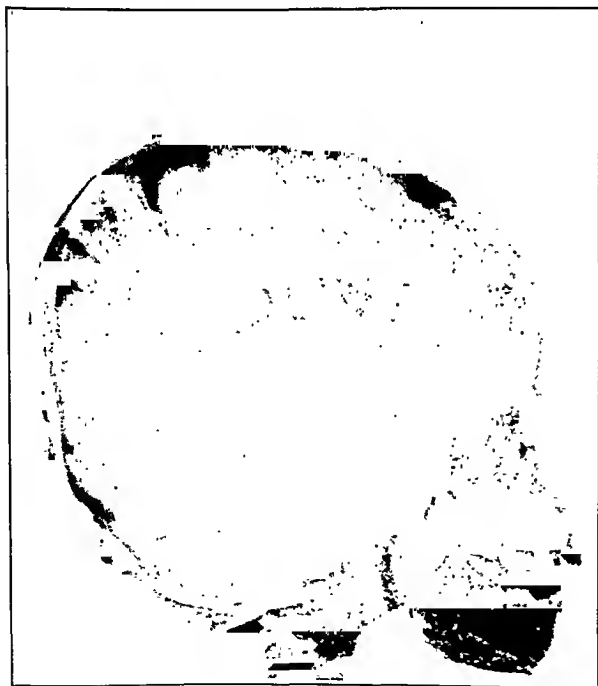


Fig. 6.—Side view of the patient shown in figure 5.

studied, with emphasis on the early uncomplicated lesions, is presented in the following paragraphs.

Edema and congestion of the brain and cord and generalized visceral congestion were present to a severe degree. On microscopic examination a diffuse meningo-encephalitis was found. The changes may be divided into several groups. There was widespread involvement

sisted in perivascular accumulations of cells (fig. 8). In the early stages of the disease the reaction consisted mainly of neutrophils, lymphocytes and large mononuclear cells. As the duration increased, the predominant type cells were the lymphocyte and the large mononuclear cell, a change which paralleled the cell picture in the spinal fluid. The third type of reaction consisted in diffuse meningitis, most marked over the base of the brain and present to a slight degree over the cord. The meningeal reaction corresponded to that found in perivascular spaces (fig. 9). In one instance the meningeal reaction over the base of the brain was severe enough to give the gross picture of an acute pyogenic meningitis. The last type of characteristic reaction consisted in the presence of vascular lesions in both arterioles and venules. Numerous small thrombi were present in the small vessels. In addition many of the vessels showed complete involvement of their walls characterized by neutrophilic infiltration and fibrin deposition (fig. 10). Demyelination was not a prominent feature except where entire areas were destroyed by the inflammatory process. No inclusion bodies, either nuclear or cytoplasmic in location, could be demonstrated in the central nervous system. No bacteria were found in association with the early lesions, either by cultural or by staining methods.

The cord in most of the cases showed no involvement except for edema and congestion. Occasional evidences

of early damage to nerve cells could be demonstrated, but in no case was cellular reaction demonstrable.

The distribution of the lesions was of some interest. The most severe involvement was found in the basal ganglia and the brain stem. There was diffuse involvement of the cortex, although numerous small uninvolved areas could be seen. The olfactory bulb was either spared or very little involved. The cerebellum showed occasional slight evidences of inflammation, and these corresponded in degree of severity to those noted occasionally in the cord. The type and wide distribution of the process permitted the conclusion that no particular localization of lesions could be considered characteristic of the disease.

This type of encephalitis falls into the group of polioclastic encephalitis. In this group are St. Louis encephalitis, rabies, equine encephalomyelitis, Japanese encephalitis B, poliomyelo-encephalitis and lethargic encephalitis. The picture of equine encephalitis as seen in this material corresponds closely to that described for encephalitis of the St. Louis and Japanese B types. Qualitatively the changes are similar to those of encephalitis lethargica. The nearest comparison, which amounts in some cases almost to duplication, particularly after five days' duration of the disease process, is with the picture of St. Louis encephalitis.⁸

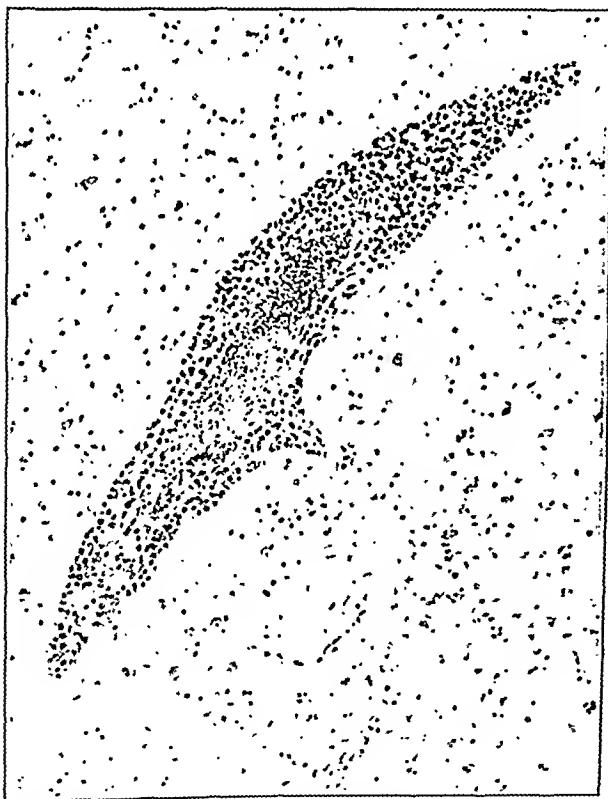


Fig. 8.—Medulla of a boy aged 7½ years who died forty-eight hours after onset of symptoms. Note perivascular infiltration. Eosin-methylene blue stain. Slightly reduced from a photomicrograph with a magnification of 200 diameters.

The vascular lesions which are so prominent in equine encephalitis in this series have not been stressed in the other forms. Except for the difference in distribution,

with particular reference to absence of involvement of the anterior horn cells in the spinal cord in this disease, the type of damage and cellular response closely correspond to the changes in poliomyelo-encephalitis.

The changes in the body consisted mainly of congestion and edema. Severe pulmonary edema was



Fig. 9.—Section of cortex and meninges of a boy aged 7½ years who died forty-eight hours after onset of symptoms. Note infiltration of meninges. Eosin-methylene blue stain. Slightly reduced from a photomicrograph with a magnification of 200 diameters.

present in all cases as a terminal phenomenon. In the lungs of a patient who died forty-eight hours after the onset, culture of whose blood stream yielded no organisms, an early interstitial pneumonia was found. Scattered small thrombi were present in small vessels in various organs of the body of this patient. Bronchopneumonia was present in all patients who died a few days or more after the onset of the disease.

DIAGNOSIS

A clinical diagnosis of equine encephalitis cannot be made during the acute phase of the disease with the aid of clinical methods of investigation now available. If the disease progresses to recovery or death of the patient, proof concerning the exact nature of the encephalitis may be obtained by neutralization tests performed on blood serum, usually two weeks or more after the onset of the disease, or by isolation of the virus from the brain and subsequent identification. It is desirable to procure at least 10 cc. of blood serum for the performance of the neutralization test. Tissue for virus study may be removed from the cerebral cortex, hippocampus or medulla oblongata in fatal cases. Should no facilities for immediate study of the fresh tissue be available, the selected specimens of brain should be placed in preserving fluid consisting preferably of equal parts of glycerin and phosphate buffer at a

8. McCordock, Howard A.; Collier, William, and Gray, Samuel H.: The Pathologic Changes of the St. Louis Type of Acute Encephalitis. J. A. M. A. 103: 822-825 (Sept. 15) 1934.

p_H of 7.4 or of equal parts of neutralized glycerin and physiologic solution of sodium chloride. The brain tissue so prepared or the blood serum should be sent without delay to a laboratory prepared to conduct the necessary studies.

The histologic picture in the central nervous system is distinctive and suggestive, and it provides an excellent control for animal inoculation studies. The number of postmortem examinations performed on man is too small, however, to permit the definition of a pathologic picture which may be regarded as absolutely diagnostic of, or specific for, this disease.

The clinical diagnosis of equine encephalitis may be suggested, particularly at times of local outbreaks of the disease among horses or birds, by the abruptness of onset and rapid development of signs of severe involvement of the central nervous system. Further suggestive evidence may be obtained if examination of the spinal fluid during the acute phase of the disease



Fig. 10.—Section of medulla of boy aged 7 $\frac{1}{2}$ years who died forty-eight hours after onset of symptoms. Note involvement of wall of arteriole, with deposition of fibrin and inflammatory cell infiltration. Eosin-methylene blue stain. Slightly reduced from a photomicrograph with a magnification of 970 diameters.

reveals a pleocytosis predominantly neutrophilic in character, increased protein, normal sugar and absence of organisms on smear or culture.

SUMMARY

Eight instances of encephalitis in infants and children caused by the virus of the eastern variety of equine encephalomyelitis were observed. Five of the patients died; three survived but had serious residual neurologic disorders. The pathologic picture is that of a severe diffuse meningo-encephalitis and resembles that caused by the virus of St. Louis encephalitis.

300 Longwood Avenue.

A SURVEY OF PRENATAL SYPHILIS IN A HOSPITAL FOR SICK CHILDREN

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AND

MARY O. HEINZ, B.A.

CHICAGO

The exact incidence of prenatal syphilis is difficult to determine. It varies according to country, population and race. Actual prevalence would have to take into consideration the incidence of abortions, stillbirths and preceding postnatal deaths due to syphilis. The results of Jeans and Cooke's¹ study are most frequently quoted as to the incidence of congenital syphilis in the United States. They estimated that 2.89 per cent of the babies born in St. Louis had prenatal syphilis. Negroes composed 9 per cent of their patients but furnished half the cases of congenital syphilis in infancy. Cole² thinks that in some sections of the United States where the Negro population is great the incidence of prenatal syphilis may be as high as from 15 to 20 per cent.

Prior to 1938 routine serodiagnostic tests were made only on all patients in the wards of the Children's Memorial Hospital. In the outpatient department the diagnosis was based on clinical data supplemented by serologic tests when these seemed indicated. As a result of a survey conducted by the social service department it was revealed that by this method alone only 0.2 per cent of our patients were found to have congenital syphilis. The challenging discrepancy between this figure and that of Jeans and Cooke, in spite of the relatively small number of Negroes in our clinic, together with the fact that this method alone had not uncovered all cases, made it evident that an investigation was indicated.

The resulting survey here presented, begun in 1938, had the following objectives: first, to determine the incidence of syphilis in our own clinic population, a clinic for sick children only and predominantly of the white race; second, to evaluate the comparative statistical dependability of clinical and serologic diagnosis under existing conditions; third, to find out what factors, such as states of health, most often led to false serodiagnostic reactions in children; finally, we hoped to reach some decision as to the relative reliability in children of the various tests with a view to final selection for routine use of the ones best suited to our own needs and possibly those of others.

PROCEDURE

In order to determine the incidence of syphilis in our clientele and at the same time not overload the laboratory, it was decided that all patients applying at the clinic for care for the first time between March 1, 1938, and March 1, 1939, were to have several serodiagnostic tests for syphilis. Three tests were made on each patient: the Wassermann, Kolmer technic, Kahn and Eagle flocculation tests. The Eagle flocculation tests were done on half quantities and the material was incubated in a water bath for thirty minutes at 56 C.

From the Children's Memorial Hospital.
The Public Health Department cooperated with the technician, Dr. J. E. Kemp of that organization in the procedures and results, and the social service . . . Memorial Hospital cooperated.

1. Jeans, P. C., and Cooke, Jean V.: *Prepubescent Syphilis*, New York, D. Appleton & Co., 1930.
2. Cole, H. N.: *Congenital and Prenatal Syphilis*, J. A. M. A. 109: 580-585 (Aug. 21) 1937.

instead of three hours at 37 C. as now advocated. This was done both because it required less blood and because it was less time consuming. Of the seventeen siblings of syphilitic patients there were five who gave positive serologic reactions. Three of these are included in this survey because they were new patients; two were excluded because they had previously been registered in the clinic. Resistance on the part of parents was practically negligible.

TABLE 1.—*Patients with One or More False Positive or Doubtful Serodiagnostic Tests*

Diagnosis	With Fever	Without Fever
Upper respiratory infection, uncomplicated....	18	8
Upper respiratory infection with complications.....	22	3
Pulmonary infections (pneumonia, atelectasis, pertussis).....	4	2
Local suppuration.....	4	1
Generalized skin eruptions (eczema, seborrheic dermatitis and dermatitis venenata).....	5	3
Pylorospasm.....	1	..
Scurvy.....	1	..
Trauma.....	3	4
Diagnosis uncertain.....	3	..
Total patients.....	61	21

The patients for whom all three tests were negative and who also had a negative family history and no physical signs suggestive of syphilis were considered not syphilitic.

Patients with positive or doubtful reactions to one or more of the serodiagnostic tests were referred to the syphilitic clinic, where a more detailed family history was obtained, the patient was examined by the syphilologist, and such further serologic tests were made as were necessary. In the doubtful cases with evidences of an acute infection the tests were repeated during convalescence and, if still doubtful, one month after recovery. If there was no apparent infection, the test was repeated in from one to four days. The parents and siblings in all the positive and persistently doubtful cases were tested. The mothers of all infants too were tested, in order to make sure that a negative test in a young baby was not due to the generally accepted non-dependability of serologic reactions in earliest infancy.³ When the diagnosis of syphilis was made, treatment was carried out in the syphilis clinic.

In some instances the serodiagnostic tests remained doubtful long enough and the physical data were sufficiently equivocal to require examination of the spinal fluid, and of the blood, after provocative therapy. When the patient was proved to be nonsyphilitic he was discharged from the syphilis clinic.

RESULTS

During the twelve months from March 1, 1938, to March 1, 1939, 5,625 patients from 1 day to 13 years of age were examined for evidence of syphilis. Only 185 were Negroes, three were Chinese and the remainder were of the white race. No significant correlation could be made between incidence of syphilis and parental national origin or religion.

Twenty-seven cases of syphilis were found, an incidence of 0.48 per cent. Of these twenty-seven syphilitic children, twenty-six had prenatal involvement and one had acquired the disease through a transfusion given elsewhere soon after birth. Five of the children with

prenatal syphilis were Negroes. Whereas the Negroes made up only 3.3 per cent of the total additions to the clinic during this year of the study, they furnished 18.5 per cent of the syphilitic patients. The actual incidence among Negro children was only 2.7 per cent, against an incidence of 0.4 per cent among the white children.

The Illinois state law requiring premarital serologic tests and the widespread antisiphilitic propaganda leading to the more frequent and more intensive treatment of syphilitic parents and especially of pregnant women are undoubtedly important factors in our relatively low incidence. The fact that our syphilis clinic has declined materially in attendance during the last few years as more of this work has been taken up by public agencies must also be considered, but the actual effect of this on the general incidence among our patients is hard to evaluate.

The value of routine serodiagnostic tests in finding patients with syphilis is readily appreciated from a study of our results. Twenty-two of the twenty-seven syphilitic patients had been diagnosed clinically; five of the twenty-seven cases were discovered as a result of routine blood tests. When carefully checked, two of these five were found to have stigmas of prenatal syphilis. From this it appears that serologic tests revealed the presence of syphilis that had not been diagnosed clinically about once in 1,100 cases.

Roentgenograms of the long bones were taken of all infants of syphilitic parents despite the history of adequate treatment of the mother during pregnancy. Only one case was revealed in this way. Two older children had syphilis of the bone, periostitis of the tibia.

The serodiagnostic tests were not delayed because of illness, a rare occurrence, unless drawing the blood jeopardized the child's welfare. There were eighty-two children (eighty-one white and one Negro), or 1.46 per cent, who had a positive or doubtful reaction in one or more of the tests which later proved negative. No definite time relationship could be established but, in general, after the nonspecific infection had cleared up the serodiagnostic tests became negative. All of these eighty-two children who had false positive or doubtful reactions except seven had, at the same time, definite evidence of infection, and four of these seven had generalized eczema as well. Sixty-one of the children had fever at the time the blood was drawn for the tests. The repertory of clinical diagnoses included infections of

TABLE 2.—*False Serodiagnostic Results*

Test	Positive	Doubtful	Total
Kahn only.....	11	45	56
Eagle only.....	1	23	24
Wassermann only.....	8	14	22
Kahn and Eagle.....	6	4	10
Wassermann and Kahn.....	2	2	4
Wassermann, Kahn and Eagle.....	1 (W)	1 (K and E)	1
			117

the upper respiratory tract of all grades of severity, otitis media, mastoiditis, retrotonsillar abscess, cervical adenitis pneumonia, pertussis, catarrhal jaundice, impetigo, furunculosis, eczema and pylorospasm with fever (table 1). Parran and Emerson⁴ expressed not only their own impression but also that of many serologists in saying that "since with the present serologic tests for syphilis both typical and atypical

3. Jeans, P. C.: Syphilis, in Brennemann, Joseph: *Practice of Pediatrics*, Hagerstown, Md., W. F. Prior Company, Inc., 1936, vol. 2, chapter 26, p. 43.

4. Parran, Thomas, and Emerson, Kendall: The Effect of Tuberculin on the Serologic Reactions for Syphilis, *Am. Rev. Tuberc.* 30:1:144 (Jan.) 1939.

false doubtful and false positive results are found in serums from tuberculous donors, it is evident that tuberculous toxemia may contribute a confusing factor to the serologic study of syphilis." Although there were seventy-four children with active tuberculosis, not one was found to have a false positive serodiagnostic test. The only child with active tuberculosis and positive serodiagnostic tests proved to be syphilitic, and both parents were also syphilitic.

An analysis of the false reactions brought out the following facts:

(a) The Kahn test was the most sensitive, the Eagle flocculation test next, and the Wassermann test the least sensitive (table 2).

(b) A false Wassermann reaction did not persist despite the continued presence of the nonspecific infection, with or without fever.

(c) There was one instance of a positive Wassermann test of a 5 weeks old nonsyphilitic baby of a syphilitic mother. The tests made after the neonatal period were all negative. The mother had had intensive anti-syphilitic therapy from the third month of pregnancy to term. The baby did not have any stigmas of prenatal syphilis. Apparently sufficient reagin from the mother was still present in the newborn baby to make the blood test positive although the baby was not syphilitic.

The 5,625 patients tested during the one year period represent 5,281 families. One or both parents in eighty of these families were syphilitic. One hundred and twenty-five children of these syphilitic parents were tested. Ninety-eight were not syphilitic and, as previously stated, twenty-seven were.

SUMMARY

The 5,625 new patients, from 1 day to 13 years of age, admitted to the Children's Memorial Hospital dispensary and wards from March 1, 1938, to March 1, 1939, were examined clinically and serologically for the presence of prenatal syphilis. Three serodiagnostic tests were made on each patient: the Kolmer-Wassermann, the Kahn and Eagle flocculation tests.

The racial distribution was as follows: white 5,437, black 185, yellow three.

There were twenty-seven patients with syphilis in the group of 5,625, making an incidence of 0.48 per cent. One child had acquired syphilis through a blood transfusion; twenty-six had prenatal syphilis. The incidence of prenatal syphilis was, therefore, 0.46 per cent.

Whereas the Negroes constituted only 3.3 per cent of the total clinic population examined, they constituted 18.5 per cent of the syphilitic patients.

The incidence of syphilis among the Negro children of our clinic is not as great, however, as it would seem, since only 2.7 per cent of them were syphilitic. The incidence of syphilis among the white children was 0.4 per cent.

During the year there were eighty-two patients with false positive or doubtful reactions. An infection or a severe generalized cutaneous eruption was present in seventy-four of these patients. The serologic tests returned to normal before or soon after evidences of infection cleared. We did not find a tendency toward false reactions in patients with active tuberculosis. The acute infections of the respiratory tract during the febrile period contributed the large majority of instances of false positive serologic reactions.

Routine serodiagnostic tests for syphilis are obviously advisable in a children's dispensary or hospital.

Although it would have been possible to diagnose clinically twenty-six of the twenty-seven cases of syphilis found during the year, actually only twenty-two, or 82 per cent, were so diagnosed or suspected prior to the serology report.

In this survey the Kahn test proved the most sensitive and the Wassermann test the most reliable.

It would seem from this a safe procedure to do a Kahn test as routine since not a single false negative test was given. If positive, the Kahn test should be fully checked by the Wassermann test and by an adequate clinical investigation of the patient and his family.

707 Fullerton Avenue.

THE USE OF SODIUM SULFAPYRIDINE BY HYPODERMOCLYSIS

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When sulfapyridine was introduced for clinical use in the treatment of pneumococcal infections in July 1938 by Evans and Gaisford¹ it was found that a considerable number of persons could not tolerate the drug by the oral route. Later it was discovered that the absorption of the drug from the gastrointestinal tract was erratic. There was no direct relationship between dosage and blood level of the drug even when such factors as the intake and output of fluid and the weight of the patient were controlled. This was ascribed to the relative insolubility of the drug compared with sulfanilamide.

In December 1938 Marshall² described the production of sodium sulfapyridine, which is soluble, and performed toxicity experiments on animals. Following his directions for preparation, we began giving pneumonia patients cutaneous tests with solutions of sodium sulfapyridine in varying strengths and found that solutions up to 1 per cent gave no reactions when injected intracutaneously and subcutaneously.

Since January 1939 my associates and I have used sodium sulfapyridine by hypodermoclysis in more than fifty cases of pneumonia and other conditions for which sulfapyridine was indicated, such as pneumococcal meningitis. The initial dosage used during this time has been from 3 to 7 Gm. dissolved in 1 liter of physiologic solution of sodium chloride depending on the weight, estimated kidney function and state of hydration of the patient. Subsequent doses were given at intervals of from twenty-four to thirty-six hours in similar amounts, depending on the response of the patient, the blood level attained and the reactions that occurred.

In spite of the fact that such solutions are highly alkaline (p_H 10.5 or higher) we have not observed a single local reaction. We have used more than 1,100 Gm. of the drug by this route. We feel that this mode

Dr. Leona L. Miller prepared the sodium sulfapyridine. From the Department of Medicine, University of Rochester School of Medicine and Dentistry, and the Medical Clinics of the Strong Memorial and Rochester Municipal Hospitals.
1. Evans, G. M., and Gaisford, W. F.: Treatment of Pneumonia with (2-Sulfamido-6-methylpyridine) Pyridine. *Lancet* 2:14 (July 2) 1938.
2. Bratton, A. C., and Litchfield, J. T., Jr.: of 2-Sulfamido-6-methylpyridine and its Soluble Sodium Dec. 23) 1938. Marshall, E. K., Jr., and Long, vridine. *J. A. M. A.* 112:1671 (April 29) 1939.

of administration has many advantages and in a large number of cases is the method of choice.

The advantages over oral administration are as follows:

1. There is no question about absorption, especially when vomiting is present.
2. A concentration in the blood plasma of from 4 to 10 mg. per hundred cubic centimeters can be reached within a few hours, and this is maintained for from eighteen to thirty-six hours.
3. The requirement of sodium chloride is supplied at the same time. Many patients dislike taking salt orally.
4. The fluid intake is supplemented. In many cases in which sulfapyridine is given orally it is difficult to maintain fluid intake at optimal levels because of nausea and vomiting.
5. Smaller total doses are generally required.

The advantages over intravenous administration of sodium sulfapyridine are:

1. There is no danger of local reactions. Five per cent solutions of sodium sulfapyridine are reported to be very irritating if some of the solution escapes the vein.
2. The effective concentration in the blood is maintained for a longer time—twenty-four hours as compared with about twelve hours.
3. The technic of administration is simpler and more widely applicable.

The method of preparation of the solution has been the same as that used for parenteral sulfanilamide. Physiologic solution of sodium chloride is brought to a boil and allowed to cool for five minutes and the powdered sodium sulfapyridine is added. The solution is then allowed to cool to body temperature and given in the routine fashion into the thighs or under the breasts. The average patient usually tolerates administration by this route at the rate of from 200 to 300 cc. an hour.

It was found that physiologic solution of sodium chloride is preferable to Ringer's solution. We were never able to get complete solution of the sodium sulfapyridine in Ringer's solution. In cases in which this was tried, the solution was cloudy and appeared to be a suspension. In a few cases such a suspension was used without ill effects, but I feel that the use of physiologic solution of sodium chloride is preferable.

Regarding toxicity, we have noted no appreciable difference in the incidence of any of the usual reactions to sulfapyridine. The fact that nausea and vomiting occurred in more than half of the cases in which the sodium salt was given supports the theory that such reactions are of central rather than of local origin. There were several deaths among the cases in which sodium sulfapyridine was given but none of them were proved to be caused directly by the drug.

There were not sufficient cases in which the sodium sulfapyridine was used alone to evaluate its efficacy as compared with serum or sulfapyridine by mouth, but the general impression was that the sodium sulfapyridine given by hypodermoclysis was equal in effectiveness to oral sulfapyridine, and as a rule smaller amounts were required to cure the patient.

SUMMARY

Sodium sulfapyridine has been used by hypodermoclysis in more than fifty cases of pneumonia and numerous other conditions for which sulfapyridine was indicated but in which oral administration was difficult or impossible. The drug was given in from 0.3 to 0.7 per cent solution in physiologic solution of sodium chloride and no local reactions were observed in any

of the cases. More than 1,100 Gm. of the drug has been given by this method.

This route of administration is advocated when the drug is not tolerated by mouth or is poorly absorbed from the gastrointestinal tract and when a high sustained concentration in the blood is imperative.

260 Crittenden Boulevard.

PERTUSSIS PROPHYLAXIS

A CONTROLLED STUDY

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SAN FRANCISCO

A study of pertussis prophylaxis has been under observation at the University of California since March 1935. The plan of our method of study, the criteria for exposure to pertussis and the results of our earlier observation have been published in detail in a previous report.¹ My purpose in this report is to bring the results of our observations up to date, to stress the necessity of rigid control for such a program and to point out some of the difficulties encountered in a study of this nature.

The efficacy of a prophylactic procedure is difficult to determine conclusively in most diseases. Pertussis is not one of the exceptions. The best and most critical test of any prophylactic measure is subjection of the immunized or treated individual to direct close contact with the disease in question. Studies of this nature not infrequently require years of observation on a rigidly controlled basis. Since we cannot deliberately subject a large number of pertussis vaccine immunized children to intimate contact with children suffering with this disease, it becomes necessary to accumulate accurate available data patiently over long periods of time.

The number of cases of pertussis in a given community may vary in different twelve month periods and in the corresponding seasons. In San Francisco there have been 790 cases of pertussis reported during the past twelve months, June 1, 1938, to June 1, 1939. This incidence is low when compared to 1,174, 977 and 2,426 cases reported during the three previous twelve month periods beginning June 1, 1935, and ending June 1, 1938, respectively. These variations are shown graphically in chart 1, the curves representing the trend in the case incidence rather than the true case rate, because many patients with pertussis are not seen by a physician and not all cases of pertussis in a community are reported.

It would seem logical that the chance of exposure to pertussis should vary with the incidence of the disease in a given community. An analysis of the total number (260) of direct exposures² to pertussis which occurred in our series of 796 children under observation during the entire period of our study shows that these exposures appear to have a definite correlation with the incidence of the disease in San Francisco during the same period.

This study was made possible by a grant from the Christine Breen Fund.

From the Department of Pediatrics of the University of California Medical School and the Hooper Foundation for Medical Research.

1. Singer-Brooks, Charlotte H.: *J. Pediat.* 14: 25-38 (Jan.) 1939.
2. Only direct exposures to pertussis are recorded. Probable and possible exposures have been excluded, since in those instances we were not able to establish without question that exposure to living *Haemophilus pertussis* organisms occurred. Not infrequently a child contracts pertussis without the parents' knowledge of exposure to the disease. In such cases direct exposure has obviously occurred, and we have classified them as such. Since exposure to pertussis is often not noticed, it is likely that we have had a larger number of exposures in our group than has come to our attention.

This correlation is shown graphically in chart 2. Multiple direct exposures are included in the total 260 exposures recorded.

In different epidemics there is considerable variation in the severity of the disease; a mild course predominates in some epidemics, whereas in others the disease has been more severe. It is especially difficult to determine accurately the number of exposures to pertussis which occur during mild epidemics, since undoubtedly many cases are missed (so-called abortive cases). Without the cough plate (bacteriologic diagnosis) it is not always easy to determine whether direct exposure to living *Haemophilus pertussis* organisms has occurred. Determination of this factor is dependent in a degree on the cooperation of the parent in reporting known exposures soon after they occur.

If a child is exposed to a very small dose (only a few living *Haemophilus pertussis* organisms) it is quite possible that he will not acquire symptoms of the disease. Hence the size of the infective dose and the virulence of the organism are also important factors in determining the efficacy of prophylaxis in any program of immunization. The observer should not overlook any of these factors and must be on guard to maintain an extremely critical, even skeptical, point of view, basing conclusions only on severely tested objective manifestations.

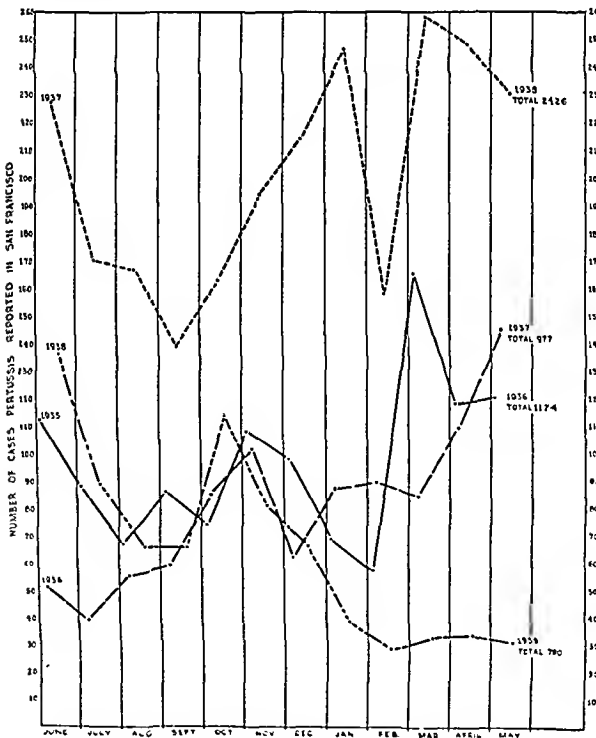


Chart 1.—Incidence of pertussis in San Francisco: Curves show the seasonal variation of cases of pertussis during four twelve month periods. The figures at the end of each curve represent the total number of cases reported during the respective twelve month period.

The follow-up study, which is the most valuable part of this program, entails unceasing education of the parent, not only to enlist cooperation in reporting exposure as soon as it occurs but also to maintain this cooperation over a period of years.

In our study we have frequently encountered instances in which a history of direct exposure was reported by the parent, but on careful, minutely detailed questioning as to all the circumstances related to the reported

exposure (whether coughing was known to have occurred, the distance between the patient with pertussis and the child in question, and the duration of the contact) direct exposure to pertussis has been unquestionably ruled out. In other instances a home visit with the contact, for the purpose of taking cough plates (from three to five), has revealed that exposure to living *Haemophilus pertussis* was very doubtful, since the patient in question was not in the communicable phase of the disease.

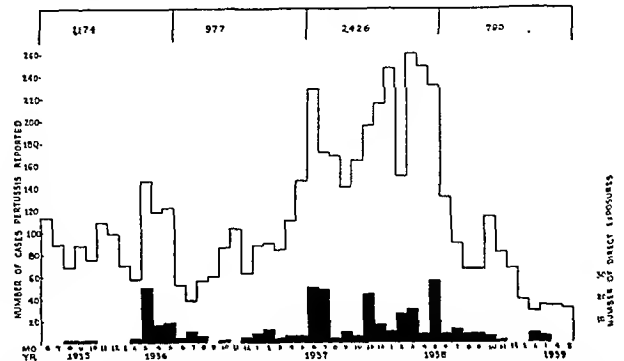


Chart 2.—Correlation of exposures to pertussis which occurred in children under our observation, with the incidence of the disease in San Francisco during a four year period. Limitation of space demanded the representing of our figures in two different scales as indicated. The top line represents the number of cases of pertussis reported. The figures at the top represent the total number of cases reported during the respective twelve month periods. The solid portion represents the distribution of the 260 exposures to pertussis which were observed in the 796 children during the period of four years.

The number of children in our prophylaxis study has increased gradually since March 1935. We have deliberately kept the number of children in our study under 1,000 in order to obtain a more critical follow-up study. Obviously the follow-up becomes increasingly more difficult as the number of children under observation increases. Clinic patients are notorious for their frequent changes of address, and finding them not infrequently consumes considerable time and effort. When change of employment has required a change of residence out of the city or out of the state, the follow-up has been conducted through correspondence. Although this is not as satisfactory as personal contact, some information as to familial exposure can be obtained this way. Change of economic status sometimes eliminates patients from clinic care. We have been able to keep such patients for "follow-up only" through special arrangements with the social service departments and by enlisting cooperation of the parents. Not infrequently we have lost the control child in these instances because the parent has requested the private physician to give prophylactic injections of pertussis vaccine to the new members added to the family group.

In addition to determining whether protection was conferred by injections of *Haemophilus pertussis* vaccine, we wished to obtain some accurate information as to the duration of protection. It is impossible to predict at what period of life exposures may occur. What, then, will be the result when an immunized child has his first direct exposure to pertussis four or five years after having received prophylactic injections of pertussis vaccine?

In our group we have children who have been risking exposure from three to four years without yet having been exposed to the disease. To reinoculate children in the pertussis vaccine series after a lapse of two years, as has been advocated by some investigators, would not throw much light on the duration of protec-

tion. Hence, except in special cases, such as the existence of organic heart disease or for an equally justifiable reason, we have not given a secondary vaccine stimulus to our immunized children.

As the period of observation has increased we note that in many instances the number of children per family also has been increased, and we are approaching more and more the ideal of sibling or familial controls. Furthermore, we have families in which one member received vaccine three or more years ago and in the intervening interval two or more children (in the case of twins) have been added to the family group, none of whom have been known to have been exposed to pertussis. In such families a second child has been inoculated with pertussis vaccine. It would seem that this procedure might aid in obtaining valuable information as to one of the factors responsible in the duration

laxis study. Of this number ninety-four children received injections of undenatured bacterial antigen during the nine month period between March and December 1935. This antigen was discontinued entirely in December 1935. Pertussis phase I vaccine (total dose 80 billion organisms) was given to 330 children in the period September 1935 to June 1, 1939. Noninoculated controls comprise 372 of the total 796 children. Of the total number of control children, seventy-seven serve as sibling or familial controls³ for the ninety-four children inoculated with undenatured bacterial antigen; 200 are sibling or familial controls for the 330 children inoculated with pertussis vaccine; ninety-five are additional controls with no test child in the family. In order to avoid confusion, the inoculated groups with their respective controls and the additional control group will be considered separately.

TABLE 1.—Summary of Results in Undenatured Bacterial Antigen and Control Groups *

Group	Total Number of Children	Number of Children Directly Exposed to Pertussis	Number of Exposed Children Who Contracted Pertussis	Communicability Rate (% of Exposed Children Who Were Attacked)	Difference in Communicability Rate of the Two Groups	Number of Exposed Children Who Did Not Contract Pertussis	Protection Rate (% of Exposed Children Who Escaped)
Undenatured bacterial antigen	94	45 (49.4%)	39	86.6		6	13.3
Noninoculated sibling or familial controls	77	35 (45.4%)	30	85.8	0.8%	5	14.2

* Summary of exposures to, cases of and escapes from pertussis which occurred in the group of children injected with undenatured bacterial antigen and their respective sibling or familial controls. The figures in parentheses represent the percentages of the total number of children in each group who encountered exposure during the entire period at risk (from three years, five months to four years, two months).

TABLE 2.—Summary of Results in Haemophilus Pertussis Phase I Vaccine and Control Groups *

Group	Total Number of Children	Number of Children Directly Exposed to Pertussis	Number of Exposed Children Who Contracted Pertussis	Communicability Rate (% of Exposed Children Attacked)	Difference in the Communicability Rates	Standard Error	Number of Exposed Children Who Did Not Contract Pertussis	Protection Rate (% of Exposed Children Who Escaped)
H. pertussis phase I vaccine (total dose 80 billion)	330	64 (19.4%)	5	7.8	....	.....	59	92.2
Noninoculated sibling or familial controls	200	45 (22.5%)	44	97.7	89.9	±105	1	2.2

* Summary of instances of exposures to, cases of and escapes from pertussis which occurred in the group of children inoculated with Haemophilus pertussis phase I vaccine and their respective sibling or familial controls. The figures in parentheses represent the percentages of the total number of children in each group who encountered exposure to pertussis.

of protection conferred by injection of vaccine. It is well known that an attack of pertussis does not necessarily confer a lasting or absolute immunity to the disease, and a lasting or absolute resistance from vaccine immunization is not expected.

The duration of protection following immunization with pertussis vaccine will probably depend in large measure on the complicated immunity mechanism of each individual host and perhaps on silent infection following exposure to massive dosage at a time when resistance is high. Repeated exposure to smaller infective dosage at longer intervals after immunization also may act as a stimulus in increasing resistance to the disease. The latter may influence noninoculated children in the same manner. It may be one of the reasons why escapes following exposure to the disease are encountered more frequently in the older age groups of the controls. Prevalence or absence of pertussis in a given community, then, may have an important influence on the duration of protection conferred by injection of pertussis vaccine.

RESULTS

From March 1935 to the present time we have had 796 children under observation in our pertussis prophylaxis study.

GROUP 1.—Undenatured Bacterial Antigen and Controls.—In a previous report, evidence was presented showing that undenatured bacterial antigen confers practically no protection against pertussis. The ninety-four children inoculated with this antigen may well be classified as controls, but for accuracy we have kept this group separate. As the number of children in this group has not increased since December 1935, all these children have been subjected to risk of exposure to pertussis for at least three years and five months—some of them for over four years. Likewise, the seventy-seven children who served as sibling controls for this group have also been risking exposure for the same period of time.

A summary of results of our observation on ninety-four children inoculated with undenatured bacterial antigen and the seventy-seven controls is shown in table 1. The observations recorded further substantiate the similarity in the results obtained in the group of children inoculated with undenatured bacterial antigen and those of noninoculated sibling controls. The small difference in these results is not significant.

3. By sibling control we mean a brother or sister of the inoculated child who has had neither previous exposure nor an attack of the disease. By familial control we mean members of the same household, such as foster child, cousin or house guest.

Of the six children who escaped the disease in the undenatured bacterial antigen group, four were subjected to familial exposure. At the time of exposure the ages of the four children were 2, 6, 7 and 17 years respectively. Of the six who escaped the disease, two children, 4 and 8 years of age, had daily contact with neighbor playmates, from whom pertussis cultures were recovered.

have no other specific or reliable test for determining immunity to pertussis; nothing is known as to the nature of immunity in this disease; an explanation of this phenomenon will have to await further study.

GROUP 2.—*Pertussis Phase I Vaccine and Controls.*—We now have under observation 330 children who were inoculated with pertussis phase I vaccine * in the period between September 1935 and June 1, 1939. In this

TABLE 3.—Results According to Period at Risk *

Period When Child Was Entered into Study	Total Number of Children	Total Number of Children Exposed to Pertussis	Exposed Children Who Contracted Pertussis		Exposed Children Who Escaped		Per Cent of Total Number in Group Who Were Exposed at Some Time During the Entire Period of Risk
			Number	Per Cent	Number	Per Cent	
Haemophilus Pertussis Phase I Vaccine Group							
Sept. 1935 to Jan. 1, 1936 (at risk 41 to 45 mo.).....	55	21 (10)	3 (2)†	13.9 (20)	18 (8)	85 (80)	38
Jan. 1, 1936, to Jan. 1, 1937 (at risk 29 to 41 mo.)...	82	18 (14)	0 (0)	0 (0)	16 (14)	100 (100)	21.9
Jan. 1, 1937, to Jan. 1, 1938 (at risk 17 to 29 mo.)...	103	25 (13)	2 (2)	9.5 (15.3)	21 (11)	91.2 (84.6)	24.2
Jan. 1, 1938, to Jan. 1, 1939 (at risk 5 to 17 mo.)....	70	0	0	0	0	0	0
Jan. 1, 1939, to June 1, 1939 (at risk 0 to 5 mo.)....	20	0	0	0	0	0	0
Control Group							
Sept. 1935 to Jan. 1, 1936 (at risk 41 to 45 mo.).....	39	14	14	100	0	0	33.7
Jan. 1, 1936, to Jan. 1, 1937 (at risk 29 to 41 mo.)...	58	16	15	93.8	1	6.3	27.4
Jan. 1, 1937, to Jan. 1, 1938 (at risk 17 to 29 mo.)...	60	15	15	100	0	0	25
Jan. 1, 1938, to Jan. 1, 1939 (at risk 5 to 17 mo.)....	30	0	0	0	0	0	0
Jan. 1, 1939, to June 1, 1939 (at risk 0 to 5 mo.)....	13	0	0	0	0	0	0

* The number of exposures to, cases of and escapes from pertussis which occurred in the pertussis vaccine and control groups who risked exposure for variable periods. The figures in parentheses indicate the number of children who were exposed to sibling or familial controls with the disease and the cases and the like which resulted from these exposures.

† One child contracted pertussis only after a second familial exposure.

TABLE 4.—Results of Study for Comparison with Prevalence of Disease in Charts 1 and 2

Period During Which Children Were Entered into Study	Total Number of Children Under Observation	Exposures Which Occurred During the Respective Periods				Total Number of Exposures	Total Number of Children Exposed	Per Cent of Total Number of Children Who Were at Some Time During Entire Period Risk, Exposed to Pertussis
		Sept. 1935 through May 1936	June 1936 through May 1937	June 1937 through May 1938	June 1938 through May 1939			
Sept. 1935 to June 1, 1936..... (Pertussis vaccine 103) (Control 70)	173	[14] (at risk 0-9 mo.)	13 1* (at risk 9-21 mo.)	40 11* 4† (at risk 21-32 mo.)	7 2† (at risk 32-41 mo.)	74	56	32.2
June 1, 1936, to June 1, 1937..... (Pertussis vaccine 66) (Control 42)	108	..	[7] (at risk 0-12 mo.)	23 (at risk 12-24 mo.)	6 2* (at risk 24-36 mo.)	26	34	31.2
June 1, 1937, to June 1, 1938..... (Pertussis vaccine 105) (Control 63)	168	..	..	[8] (at risk 0-12 mo.)	13 3* (at risk 12-24 mo.)	21	18	10.7
June 1, 1938, to June 1, 1939..... (Pertussis vaccine 56) (Control 25)	81	..	..	..	[0] (at risk 0-12 mo.)	0	0	0
Total	530	14	20	70	26	131	108	20

* Number of children directly exposed for second time.

† Number of children directly exposed for third time.

Of the five children who escaped the disease in the control group, all but one were subjected to familial exposure (proved bacteriologically). At the time of exposure the ages of the four children were 3, 6, 8 and 14 years respectively. The one child not subjected to sibling exposure was 3 years old. Of the recorded eleven children who escaped the disease, three (aged from 2 to 3 years) may be considered in the susceptible age group and yet they did not develop manifestations of the disease even though they were subjected to repeated intensive infections. Were these children endowed with a natural resistance to the disease? We

number are only those children who have received a minimum total dose of 80 billion killed pertussis organisms. Children who did not return for the complete series of injections have been excluded. Sibling or familial controls for this immunized group comprise 200 noninoculated children. A detailed analysis of our observation on these 530 children will be presented so that comparison of the results in the two series can be noted more critically. A summary of the instances of exposure, of development of pertussis and of escape

4. The preparation of vaccine is given in detail in a footnote in the *Journal of Pediatrics*,¹ page 25.

of development of pertussis which occurred in the 530 children comprising the two series is shown in table 2.

The striking differences in the results obtained in the group of children immunized with pertussis phase I vaccine and those in the group of noninoculated sibling or familial controls is statistically significant, as shown by the standard error of the difference in the two groups. The protection conferred by injection of pertussis vaccine is greater than could have occurred by chance alone.

Not all the 530 children recorded in table 2 have been subjected to risk of exposure to pertussis under our observation for equal periods of time. The children immunized in 1935 and their respective controls have been risking exposure for the longest period.

When these groups are further segregated, according to the period of years during which they have been subjected to risk of exposure to pertussis (table 3), more detailed observations may be noted.

From the data in table 3 it will be noted that there is a slight variation in the communicability rate (percentage of exposed children who were attacked) and

the period of risk and the incidence of the disease during the period of risk. In order to determine the influence of the two latter factors on the number of exposures which occurred in the 530 cases in this series we have segregated them into four groups, dependent on which twelve month period they entered our series. These twelve month periods correspond to the four twelve month periods shown in charts 1 and 2, so that our results may be compared with the incidence of the disease in San Francisco. An analysis of the number of exposures which occurred in each group just described would indicate that, with the increase in the number of twelve month periods at risk, the number of exposures in the groups increases accordingly, provided pertussis also has been prevalent in the community during that time. These data are shown in table 4.

It will be seen that the peak of exposures observed in the 530 children (pertussis vaccine group and sibling or familial controls) occurred during the period in which the disease was most prevalent in San Francisco.

The percentage of the total number of children exposed during the entire period of risk would appear to be reaching a rather constant figure as the period of observation increases.

The age of the child may have some influence on the chance of exposure; 57.2 per cent of the children in our test series have received injections of pertussis vaccine before the age of 1 year. Except in instances of sibling or familial contact the chance of this age group being exposed to pertussis is considerably lower than that of the runabout or preschool age group.

In availing ourselves of sibling or familial controls we have encountered a disproportion in the age distribution of the children in the test and the control series. Chart 3 summarizes the age groups of the children in both the pertussis vaccine and the control series. It should be pointed out, however, that the

age groups shown in chart 3 refer to the age of the respective children at the time they were first brought under observation, in the case of the control group, and at the time when pertussis vaccine was given, in the case of the immunized group.

At the time pertussis vaccine was given, 88 per cent of the total number of children inoculated were under 3 years of age and only 12 per cent were between 3 and 10 years. When the total number of immunized children is further broken down into the respective twelve month periods in which vaccine was given, this age distribution is found to be consistent. In the control series the number of children under 3 years (57 per cent) and over 3 years (46.0 per cent) is more equally divided. It is conceivable, therefore, that the risk of exposure to pertussis is greatest in the control series, since a larger proportion of them are in the runabout, preschool or school age group, whereas in the vaccine series a larger proportion of the children are in the age group which is less likely to encounter exposures to pertussis. In spite of this discrepancy in the age groups of the two series there is a close similarity in the percentage of the total number exposed in each group (tables 2 and 3).

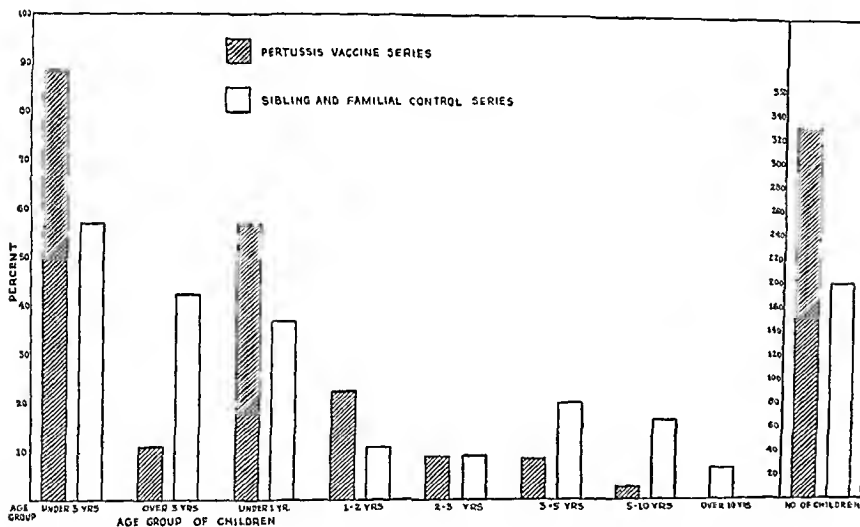


Chart 3.—Age of children in the pertussis vaccine and control series. The age groups shown represent the age of the children at the time they were entered into our study.

the protection rate (percentage of exposed children who escaped) of the immunized groups who were risking exposure for varying periods of time. It is possible that there might be an even greater variation in these rates if the children could be observed over a period of ten years. The similarity in the protection and communicability rates of the immunized children exposed to sibling or familial controls with that of the same rates for all the exposed immunized children is significant. It is not to be expected that all the children will acquire or maintain an absolute resistance to this disease as a result of having received injections of vaccine. When these data are compared with the data of the control series it would appear that there is good evidence of considerable protection having been conferred by pertussis vaccine.

It is rather striking (table 3) that there have been no known exposures and no cases of pertussis among any of the children who have been added to our study since Jan. 1, 1938. I shall attempt to account for the absence of exposures in the latter group.

There are a number of factors which will contribute to chance of exposure; namely, the age of the child,

An analysis of the interval (number of months) elapsing between immunization and exposure to pertussis is shown in chart 4. The age of the child at the time exposure occurred is shown in chart 5. These data would indicate that the majority of the sixty-four children in the vaccine series did not encounter expo-

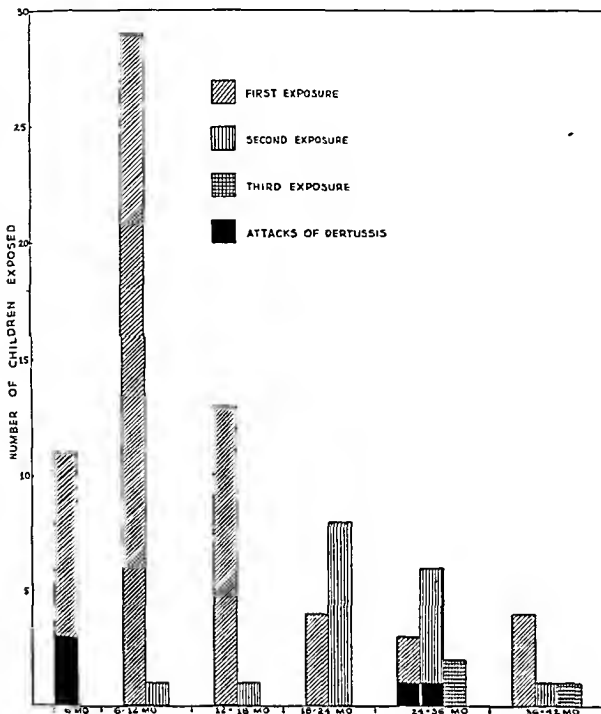


Chart 4.—Number of months elapsing between injection of pertussis vaccine and exposure to the disease.

sure to pertussis during the first year of life but during the runabout and preschool age.

Between 50 and 60 per cent of the children in our series received vaccine injections under the age of 1 year (between 6 months and 1 year). The children who were entered into the series since Jan. 1, 1938, reached the runabout age (during which the highest incidence of exposures occurs) at a time when the incidence of the disease was very low. These factors undoubtedly can account for the absence of exposures and cases in this portion of our series.

Sixty-four immunized children have been exposed to pertussis at least once (chart 5). Four cases developed as a result of the first exposure. Seventeen of the sixty-four children have been exposed twice. One child escaped the disease after the first familial exposure but contracted pertussis on subsequent exposure two years later. Infective dosage may be presumed not only to have been large (proved bacteriologically) but repeated; he had had daily contact with three foster children from the onset of their pertussis. Sixteen other children similarly exposed a second time did not show symptoms, nor did the five children who had been directly exposed three times. Infective dosage in all these instances of multiple exposures has been great, yet no manifestations of the disease could be discerned. We have observed our group very closely for a repetition of this phenomenon of lost resistance, but to date we have not encountered a similar experience. Undoubtedly if these groups are followed over a sufficiently long period this observation will be repeated.

What is the nature of the mechanism that caused this individual to be resistant to pertussis at one time and susceptible to the disease at another? Were the sixteen other children who also have been subjected to exposure twice or the five exposed three times (repeated prolonged exposure) endowed with a more efficient immune mechanism which kept them resistant? Why are some individuals incapable of acquiring resistance to pertussis even after an attack of the disease? Second attacks (proved bacteriologically) are encountered not infrequently. The answers to these questions are not available at the present time.

GROUP 3.—Controls.—This additional control group in which there was no test child in the family comprises ninety-five noninoculated children who have come under our observation during the period of the study. In many instances the parents of these children refused immunization but were willing to cooperate for a follow-up study. In other instances the parents failed to keep their appointments for pertussis immunization but did return when they were in trouble; thus the knowledge of exposure to pertussis or an attack of the disease came to our attention. Only twenty-one of the ninety-five children are without siblings. The number of siblings per family for the remainder ranges between two and seven. Many of them are in the older age group. Sixty-seven of these ninety-five children have been exposed to pertussis. The high exposure rate (70 per cent) in this group can be accounted for by the high incidence of multiple members per family group. Fifty-seven of the exposed children contracted pertussis (85 per cent). Ten of the exposed children escaped attacks (14.9 per cent). In every instance in which the escape occurred, the child was over 6 years of age. All ten children were in contact with younger members of the family afflicted with pertussis throughout the entire course of the disease. All ten children had a negative history as to both a previous exposure and an attack of the disease. Whether these histories can be relied on with certainty is a debatable question.

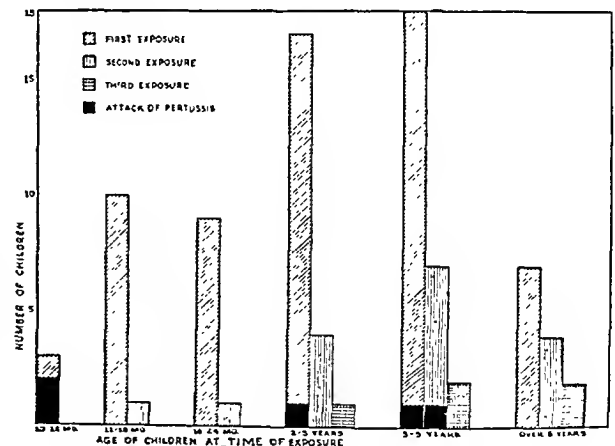


Chart 5.—The age of the sixty-four immunized children at the time they were exposed to pertussis.

Unless the child has been under observation from early infancy on it is difficult to determine with accuracy the incidence of natural resistance. Since the course of pertussis may vary anywhere between the two extremes very mild and very severe, a mild attack may well escape attention. However, since exposure to small dosage cannot always be determined with accuracy, subclinical or silent infection early in life may have played a role

in increasing the resistance to the massive dosage observed in the ten who escaped attacks in this group.

SUMMARY

An analysis of the data obtained during the past four years' observation on 796 children in our controlled study of pertussis prophylaxis strongly indicates that considerable immunity has been induced by *Haemophilus pertussis* phase I vaccine. The duration of this immunity, however, could not be definitely established, because observations over a longer period are necessary. The variability in the incidence of pertussis in a given community will influence the number of exposures that occur in children under observation. The variability in incidence also may play a role in altering the resistance to pertussis.

TREATMENT OF CHRONIC ARTHRITIS

RESULTS OF VACCINE THERAPY WITH SALINE
INJECTIONS USED AS CONTROLS

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Despite years of experience in arthritis with vaccine therapy, given both subcutaneously and intravenously, difference of opinion still prevails regarding its value. This problem has been studied over a period of several years in the Arthritis Clinic of the Beth Israel Hospital. Our observations have been made in the past four years on a group of patients with chronic arthritis to whom vaccine therapy was given intravenously and physiologic solution of sodium chloride was given subcutaneously at weekly intervals.

Billings¹ in 1912 emphasized the frequent presence of foci of infection in patients with chronic arthritis; subsequent investigators² presented further evidence that chronic arthritis was due to a bacterial cause. Thus it has been reported that streptococci could be isolated from the blood, joints and distant foci of patients with chronic arthritis. Investigators³ have also found streptococcus precipitins, agglutinins and increased antistreptolysin content of blood serum in patients with rheumatoid arthritis. Wainwright⁴ has demonstrated positive cutaneous reactions to hemolytic streptococci in rheumatoid arthritis and thus has furthered the opinion that bacterial infection is of prime significance in the etiology of this disease. This bacteriologic evidence, coupled with the fact that the clinical picture in rheumatoid arthritis strongly suggests bacterial infection, led to the use of polyvalent streptococcus vaccine as an important therapeutic measure in this disease.

From the Arthritis Clinic of the Beth Israel Hospital.
Read before the American Rheumatism Association, St. Louis, May 15, 1939.

This study was aided by a grant from the Charlton Fund of Tufts College Medical School.

1. Billings, Frank: Chronic Focal Infections and Their Etiologic Relations to Arthritis and Nephritis, *Arch. Int. Med.* 9: 484 (April) 1912.
2. Cecil, R. L.; Nicholls, E. E., and Stainsby, W. J.: Bacteriology of Blood and Joints in Chronic Infectious Arthritis, *Arch. Int. Med.* 43: 571 (May) 1929. Burbank, Reginald, and Christensen, B. E.: Specific Vaccine Treatment of One Thousand Cases of Chronic Arthritis with Results and Clinical Observations, *J. Bone & Joint Surg.* 13: 246 (April) 1931.

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Occasionally striking benefit does result from vaccine therapy in chronic arthritis, but this is rare. Reports of clinical observations indicating that vaccine therapy is an effective agent in the treatment of chronic arthritis have unfortunately lacked proper controls for correct evaluation. Cecil⁵ has reported improvement in the majority of patients treated with his polyvalent streptococcus vaccine; likewise Wetherby and Clawson⁶ reported good results in patients treated with their polyvalent streptococcus vaccine. Crowe⁷ in England has for a long time been an ardent devotee of vaccine in the treatment of both chronic rheumatoid arthritis and osteo-arthritis; he has used staphylococcus, streptococcus and mixed vaccines, all with much benefit.

However, quite an opposite point of view has been expressed by Stainsby and Nicholls,⁸ who treated a large group of patients with various types of vaccine and found the results rather disappointing. They felt that the improvement noted in some cases might well represent natural remissions. Jordan⁹ pointed out that caution should be exercised in interpreting the results obtained with vaccines until more adequate control studies were made. Similarly, Bauer¹⁰ feels that vaccine therapy in arthritis has not proved to be of value in his experience.

MATERIAL AND METHODS

The patients who formed the basis of this study were all ambulatory and made weekly visits to the Arthritis Clinic of the Beth Israel Hospital. With the exception of nine patients in the vaccine group who were followed for six months, only patients who were observed over a period of at least one year have been included; some patients were observed for four years. The diagnosis of arthritis was made by the usual criteria: history, clinical appearance, roentgenographic data and erythrocyte sedimentation determinations. Of the 122 patients who comprised this group, sixty-four had chronic osteo-arthritis and fifty-eight had chronic rheumatoid arthritis.

All the patients with chronic osteo-arthritis were treated with physiologic solution of sodium chloride subcutaneously as the only form of injection therapy. Twenty-five patients with chronic rheumatoid arthritis were treated with polyvalent streptococcus vaccine intravenously, while thirty-three received physiologic solution of sodium chloride subcutaneously. The polyvalent streptococcus vaccine was given intravenously in increasing amounts at weekly intervals, starting with 50,000 organisms and reaching a maximum of 10,000,000 organisms. The saline solution was given subcutaneously in the amount of 0.5 cc. at weekly intervals. The only other treatment employed for all the patients was the use of salicylates in approximately the same dosage for each one.

Erythrocyte sedimentation tests by the method of Rourke and Ernstone¹¹ were made at monthly intervals on all patients. The rates that obtained for the patients with rheumatoid arthritis were much higher in

5. Cecil, R. L.: Rheumatoid Arthritis: New Method of Approach to Disease, *J. A. M. A.* 100: 1220 (April 22) 1933.

6. Wetherby, Macnider, and Clawson, B. J.: Chronic Arthritis with Special Reference to Intravenous Vaccine (Streptococcal) Therapy, *Arch. Int. Med.* 49: 303 (Feb.) 1932.

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9. Jordan, E. P.: Critical Evaluation of Vaccine Therapy in Rheumatism, *J. A. M. A.* 109: 1444 (Oct. 30) 1937.

10. Bauer, W.: Personal communication to authors.

11. Rourke, M. Dorothy, and Ernstone, A. Carlton: A Method for Correcting the Erythrocyte Sedimentation Rate for Variations in the Cell Volume Percentage of Blood, *J. Clin. Investigation* 8: 545 (June) 1930.

general than those of the patients with osteo-arthritis; however, as noted by others, the rate of erythrocyte sedimentation was not infrequently entirely disproportionate to the clinical picture.

The following criteria were employed to determine improvement: first, the statement of the patient as to his feeling of well-being; second, the duration of the period of improvement; third, the ability of the patient to do an increased amount of work; fourth, a diminution in pain, stiffness, redness or swelling of joints as noted by the patient, and finally, objective improvement in the joints as noted by us. Each patient was observed independently by both of us, and only those patients who appeared definitely improved have been so considered in this series.

RESULTS OF TREATMENT

Twenty-four (72 per cent) of the thirty-three patients with rheumatoid arthritis who were treated subcutaneously with saline solution benefited distinctly; seventeen (68 per cent) of the twenty-five patients treated intravenously with vaccine were likewise benefited. Most of the patients who showed improvement did so after the first several injections, a number of them after the first injection.

TABLE 1.—Data on Ninety-Seven Patients with Chronic Arthritis Given Injections of Physiologic Solution of Sodium Chloride

Age, years.....	Rheumatoid Arthritis, 33 Patients					Osteo-Arthritis, 64 Patients				
	20-30	30-40	40-50	50-60	60-75	20-30	30-40	40-50	50-60	60-75
Sex.....	7	11	9	1	5	1	5	24	16	18
	Male		Female			Male		Female		
	14		19			27		37		
Sedimentation Index 0.1-0.4	0.1-0.4		0.5-1.0			0.1-0.4		0.5-1.0		
Before Injection..	1		9			8		49		
After Injection...	4		15			19		41		
Period of observation.....	1-2 Yr.		2-3 Yr.			1-2 Yr.		2-3 Yr.		
	10		15			17		39		
			8					8		

Fifty-six (86 per cent) of the sixty-four patients with chronic osteo-arthritis, all of whom were treated with saline injections, showed definite improvement. Combining the two groups treated with saline solution, eighty (82 per cent) of the ninety-seven patients with chronic arthritis showed improvement while receiving injection therapy.

There was less correlation between the symptoms of the patient and the level of the erythrocyte sedimentation rate after injection therapy was instituted. Many patients who claimed marked improvement showed no reduction in their elevated sedimentation rates, while some patients who had a fall in the rate of erythrocyte sedimentation had no symptomatic improvement.

COMMENT

Our study is an attempt to clarify the value of vaccine therapy in chronic arthritis. This group of 122 patients consisting of those with rheumatoid arthritis (fifty-eight patients) and osteo-arthritis (sixty-four patients) may serve as a fair cross section of the patients with chronic arthritis encountered in clinical and private practice. Also, the observation period of six months to four years seems sufficient to allow proper evaluation of results. Therapeutic benefit in any chronic ailment must be evaluated critically because of the many factors involved. Not the least of these is

the psychologic factor, and the effect of enthusiastic administration must be taken into account as well as the agents employed. This is especially true in a prolonged, discouraging type of illness such as chronic arthritis, and any hope of relief is welcomed by the patient seeking some tangible method of help. Perhaps the various reports of successful treatment with vac-

TABLE 2.—Data on Twenty-Five Patients with Rheumatoid Arthritis Given Polyvalent Streptococcus Vaccine Intravenously

Age, years.....	20-30	30-40	40-50	50-60	60-70
	4	8	10	2	1
Sex.....	Male			Female	
	7			18	
Sedimentation Index.....	0.1-0.4		0.5-1.0		1.0-2.5
Before Injection.....	0		16		9
After Injection.....	1		14		10
Period of observation.....	6-12 Mo.		12-15 Mo.		15-18 Mo.
	9		12		4

cine injections in arthritis show a high percentage of improved patients more because of the psychologic effect of the needle puncture than of the substance injected.

Also one cannot neglect the element of natural remission in chronic arthritis. This is recognized by every one yet has been insufficiently stressed by many investigators who have employed therapeutic agents. The combination of anxiety on the part of the patient to have something done, with the incidence of natural remission, may explain the improvement in many cases.

Various workers from time to time have expressed the following views: First, bacteriologic and clinical evidence indicate that chronic arthritis is an infection that is frequently helped by the use of polyvalent streptococcus vaccine; second, chronic arthritis is a disease of frequent, natural remissions, which explain the benefit noted with vaccine therapy; third, no definite stand should be maintained as to vaccine therapy until adequate control studies are made; fourth, the psychologic effect of the injection itself must be evaluated. The evidence which we have been able to gather does not substantiate the idea that any specific substance is of value in injection therapy of arthritis. Many observers using various forms of injection therapy and using

TABLE 3.—Results of Injections in 122 Cases of Chronic Arthritis

	Rheumatoid Arthritis (Saline Injection)	Rheumatoid Arthritis (Vaccine Injection)	Osteo- Arthritis (Saline Injection)
Improved.....	24 (72%)	17 (68%)	56 (89%)
Not improved.....	9 (28%)	8 (32%)	8 (14%)
Total number of cases.....	33	25	64

essentially the same criteria for improvement have obtained benefit in from 60 to 75 per cent of cases regardless of the agent employed, a percentage level somewhat lower than we found in our ninety-seven cases in which saline injections were administered. Striking beneficial results from vaccine therapy may occasionally occur, but as noted previously a number of our patients treated with saline solution claimed much improvement after the first few injections. There is no reason to believe that small amounts of physiologic

solution of sodium chloride given subcutaneously can produce a nonspecific protein-like effect, and therefore we must conclude that the injection itself rather than the substance injected must be credited with whatever improvement followed.

That weather changes, emotional strain and anything that induces lessened resistance will affect patients with chronic arthritis adversely is generally recognized, and of these various conditions that tend to reactivate or aggravate this disease we have been particularly impressed by the frequency with which the emotional factor is encountered. Perhaps it is less clearly recognized that improvement may be influenced when a physician shows interest in this discouraging chronic ailment and gives encouragement, especially when the interest takes a tangible form such as frequent needle injections.

The twenty-five patients treated with polyvalent streptococcus vaccine intravenously responded essentially in the same manner as the patients who were treated with saline solution. There is a close correlation between the results that we observed in these cases and the observations of other investigators who have used polyvalent streptococcus vaccine. We believe it fair to conclude that saline injection therapy is as effective in chronic arthritis as polyvalent streptococcus vaccine.

SUMMARY

One hundred and twenty-two patients with chronic arthritis were observed for from six months to four years; treatment consisted of weekly subcutaneous injections of 0.5 cc. of saline solution in ninety-seven cases and intravenous injections of polyvalent streptococcus vaccine in the remaining twenty-five.

Sixty-four of the patients had chronic osteo-arthritis, all of whom were treated by saline injections. Fifty-six, or 86 per cent, of these patients were improved.

Of fifty-eight patients with chronic rheumatoid arthritis, thirty-three were treated with saline injections and of these twenty-four, or 72 per cent, were improved; twenty-five were treated with polyvalent streptococcus vaccine intravenously and seventeen, or 68 per cent, were improved.

The psychologic effect of the injection itself rather than the substance injected seems important. This factor, plus the tendency to natural remission in chronic arthritis, may explain the high percentage of improvement.

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Rancidity Destroys Vitamin E.—The richest sources of vitamin E are green leaves and the embryos of seeds. Smaller amounts are found in many foods, the most important being the fat and muscle of animals and milk and eggs. The vitamin is very stable to heat, light, and being dried, but is rapidly destroyed by rancid fat. This is important, as rancid fat in the diet may destroy any vitamin E taken at the same time in other foods, and rancidity for instance in butter will, of course, destroy its own vitamin value even before it is eaten. . . . The diet of most people must be, at best, near the borderline of a vitamin E deficiency: a borderline which is easily passed if there is any difficulty in absorption from the bowel, or an unduly high consumption, for any reason, by the body. Only relatively small amounts of green vegetables are eaten. While dairy produce forms a large part of the food of the richer classes, there is the fact that the amount of vitamin E in milk and eggs depends on the diet of the cows and hens, a diet which itself is now often highly artificial and of low vitamin value.—Bicknell, Franklin: Vitamin E in General Medicine, *M. Press*, Feb. 28, 1940, p. 174.

HISTAMINASE IN THE TREATMENT OF ALLERGY

HYMAN MILLER, M.D.

AND

GEORGE PINESS, M.D.

LOS ANGELES

The theory that the liberation of histamine in the tissues is the immediate cause of the signs and symptoms of allergy has led to the use of its antagonist, the enzyme histaminase, for the prevention and alleviation of these phenomena. Elsewhere we¹ have discussed in more detail the theoretical considerations pro and con of this use of histaminase. Here we shall concern ourselves only with the report of the results of the clinical trial of histaminase as a therapeutic and prophylactic drug.

For a fairly complete review of the clinical experience of others, we refer to Laymon and Cumming's² recent publication of their presentation before the Society for Investigative Dermatology. This, together with the accompanying discussions of the other members of the society, leaves the impression that the clinical value of the use of histaminase is highly questionable. In view of this conclusion, our only reason for presenting this report is the fact that the manufacturers of histaminase have recently offered their product to the profession at large as an efficient remedy for a variety of clinical disturbances.³

Since June 1939 forty-two patients (twenty-eight with urticaria) were treated with histaminase.⁴ The enzyme was administered in enteric coated capsules between meals and with from one to two glasses of water. In no case could it be stated unequivocally that histaminase was effective in alleviating or preventing symptoms, for reports of good results were open to several interpretations and their evaluation is difficult. If we use the criterion that the efficacy of the enzyme can be measured by the frequency with which patients requested more of the substance when their supply became exhausted, we find only four such requests, and these only by patients who prior to treatment suffered from intermittent urticaria, which of course made correlation with therapy difficult.

Another difficulty arose from the frequency with which patients first reported relief from urticaria only to have a persistent recurrence shortly thereafter, despite the administration of large doses of the enzyme over prolonged periods. This coincides with the oft repeated experience in the treatment of urticaria by whatever means undertaken.

The difficulties in judging the efficacy of a remedy in so capricious a disease as urticaria are obvious. It is notorious that urticaria has a high psychogenic factor in its inception, persistence and cure, so that attempts to evaluate the effectiveness of any therapeutic measure is hazardous. Witness the innumerable remedies to be found in medical literature. Being aware of this, we treated five patients suffering from chronic allergic

1. Miller, Hyman, and Piness, George: Histaminase in Allergy: A Study of Its Effect on Skin Reactivity to Histaminase and to Allergy. to be published.

2. Laymon, C. W., and Cumming, H. A.: Histaminase in the Treatment of Urticaria and Atopic Dermatitis, *J. Invest. Dermat.* 2: 391 (Dec.) 1939.

3. "Torantil: Treatment of Allergies by Detoxication of Histamine with Histaminase," Winthrop Chemical Company, Inc.

4. The histaminase was furnished by the Winthrop Chemical Company and identified by them first as product T. 360-K and later as T-360-KV. The enzyme, contained in enteric coated capsules, was described as being derived from hog's kidney and the unit of activity as "the amount which will inactivate 1 mg. of histamine hydrochloride during incubation at 37.5° C. for twenty-four hours." A preparation of a solution of histaminase in ampules was also provided and was said to assay at 0.75 unit to the ampule.

dermatitis, five with allergic bronchial asthma and three with chronic allergic nasal allergy. In no instance was there the slightest relief in these examples of the less capricious manifestations of allergy.

RESULTS

Reference to the accompanying table shows that seven patients declared that some relief had been obtained from the use of the enzyme. All these patients suffered from urticaria. In no instance was it felt that this relief could be unequivocally attributed to the use of the enzyme. Thus, in case 1 the enzyme was administered twenty-four hours after the onset of an attack of urticaria. Reporting the following day, the patient

The enzyme was administered immediately after the onset of the urticaria, which shortly afterward disappeared and has not recurred.

Patient 12 had urticaria for one day before receiving histaminase and reported that there was a cessation of the urticaria within twenty-four hours, at the end of which time the enzyme was discontinued and there has been no recurrence.

Patient 16 had seasonal urticaria solaris, which seemed to itch somewhat less while taking histaminase, but this coincided with that time of the year in which the patient usually improved.

Patient 24 had urticaria after the administration of antigen and declared that one or two capsules of the

Use of Histaminase in Allergy

Case	Diagnosis	Duration	Days Treated	Daily Dose, Units (Oral)	Result	Comment
1	Urticaria.....	1 day	1	45	Relieved	One similar previous attack of urticaria subsided spontaneously
2	Urticaria.....	1 mo.	8	45	No relief	Urticaria caused by injection of antigen not prevented by histaminase
3	Urticaria.....	1 mo.	14	9	No relief	
4	Urticaria.....	1 wk.	10	60	No relief	Urticaria caused by injection of antigen not prevented by histaminase
5	Urticaria.....	2 mos.	14	75	No relief	At first seemed to relieve symptoms
6	Urticaria.....	8 yrs.	7	45	No relief	
7	Urticaria.....	1 mo.	90	45	Relieved	Symptoms intermittent prior to taking histaminase; still intermittent
8	Urticaria.....	1 mo.	14	45	No relief	At first seemed to relieve symptoms
9	Urticaria.....	.....	90	45	No relief	
10	Urticaria.....	1 wk.	14	30	Relieved	Urticaria caused by one injection of solution of posterior pituitary
11	Urticaria.....	1 mo.	30	45	No relief	Recurrence at varying intervals on stopping treatment
12	Urticaria.....	3 mos.	240	75	Relieved	Relief chiefly of itching; not of urticaria
13	Urticaria.....	1 yr.	7	90	No relief	Some alleviation of urticaria caused by sun
14	Urticaria.....	1 day	1	18	No relief	
15	Urticaria.....	2 mos.	14	45	No relief	Urticaria caused by injection of antigen not prevented by histaminase
16	Urticaria.....	4 mos.	7	45	Relieved	Some alleviation of urticaria caused by sun; usually clear at this time of year
17	Urticaria.....	3 yrs.	21	75	No relief	
18	Urticaria.....	2 yrs.	90	80	No relief	
19	Urticaria.....	12 yrs.	180	20	No relief	Less urticaria but not complete relief
20	Urticaria.....	1 mo.	30	9	No relief	
21	Urticaria.....	2 yrs.	30	90	No relief	
22	Urticaria.....	2 wks.	4	46	No relief	Took one unit hypodermically each day with capsules by mouth
23	Urticaria.....	15 yrs.	7	60	No relief	
24	Urticaria.....	3 wks.	90	30	Relieved	Urticaria began after injection of solution of posterior pituitary and persisted intermittently; takes histaminase only if urticaria recurs
25	Urticaria.....	40 yrs.	21	45	No relief	
26	Urticaria.....	1 mo.	90	15	Relieved	Urticaria intermittent; histaminase taken only if urticaria recurs
27	Urticaria.....	1 day	3	30	No relief	
28	Urticaria.....	7 yrs.	30	46	No relief	One unit hypodermically in addition to oral
29	Urticaria.....	1 wk.	7	45	No relief	
30	Allergic dermatitis	12 yrs.	30	60	No relief	
31	Allergic dermatitis	3 yrs.	20	60	No relief	
32	Allergic dermatitis	30 yrs.	17	75	No relief	
33	Allergic dermatitis	17 yrs.	30	75	No relief	
34	Allergic dermatitis	2 yrs.	33	102	No relief	Three units hypodermically in addition to oral
35	Asthma.....	7 yrs.	7	75	No relief	
36	Asthma.....	2 yrs.	7	60	No relief	
37	Asthma.....	7 yrs.	7	60	No relief	
38	Asthma.....	10 yrs.	7	60	No relief	
39	Asthma.....	13 yrs.	7	60	No relief	
40	Hay fever.....	20 yrs.	7	45	No relief	
41	Hay fever.....	30 yrs.	7	50	No relief	
42	Hay fever.....	5 yrs.	7	45	No relief	

stated that there had been complete relief. This was six months ago and there has been no recurrence. However, an exactly similar episode without the use of histaminase was observed about a year before.

Patient 7 declared that there was relief from itching despite the fact that there was no cessation of the urticaria. In this case the urticaria was directly attributable to injections of solution of posterior pituitary. After each dose of this substance there was an exacerbation of symptoms, but despite complete discontinuance of the substance some urticaria persisted intermittently. On recurrence of the lesions the patient would immediately take a capsule. Within a short time the itching disappeared and therapy with the enzyme was discontinued, whereupon after a longer or shorter interval of freedom the whole process was repeated.

Patient 10 had urticaria for one week after the administration of one dose of solution of posterior pituitary.

enzyme relieved the itching of the urticarial lesions after subsequent injections. However, during this subsequent period the dose of antigen was reduced, with complete relief of symptoms, without the administration of enzyme.

Patient 26 had intermittent urticaria after one injection of solution of posterior pituitary. With each onset of urticaria the patient was accustomed to take one or two capsules of the enzyme, feeling that this cut the attack short. However, the discontinuance of the enzyme did not result in an immediate recurrence of symptoms, suggesting that the taking of the enzyme might have had little to do with the cessation of the symptoms.

Added evidence of the effect of histamine on allergic lesions was sought by administering the enzyme while patients were being given intradermal tests. Patients 3, 4, 7, 8, 9, 11, 12, 17, 18, 21 and 23 were given

intradermal tests during the administration of large doses of histaminase and despite this gave specific protein reactions of the usual urticarial character. That the specificity of clinical significance was confirmed by correlation with relief of symptoms on avoiding the reacting allergens. Furthermore, in four instances (cases 2, 3, 4 and 15), urticaria resulting from the administration of a pollen or epidermal antigen was not prevented by the administration of histaminase.

Despite the fact that the average dose of enzyme was from 60 to 75 units in twenty-four hours, with a maximum of 102 units (case 33), and the longest period of consecutive treatment was 180 days (case 19), there were few untoward side reactions. In two cases (3 and 31) there was a sense of sluggishness. Patient 5 complained of giddiness and weakness. Patient 22 felt "jittery" and patient 19 found that the enzyme acted as a diuretic.

SUMMARY AND CONCLUSIONS

The treatment of forty-two allergic patients with histaminase failed to give unequivocal evidence that this enzyme was responsible for the relief or prevention of any of the signs or symptoms of which the patients complained.

672 South Westlake Avenue.

Clinical Notes, Suggestions and New Instruments

HAS DISEASE OF THE LIVER ANYTHING TO DO WITH THE CAUSATION OF MIGRAINE?

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There is many a patient with migraine or "sick headache" who feels sure that the seat of the trouble must be in the liver, perhaps because in the attacks much green bile is vomited. Actually the appearance of bile during vomiting need mean only one thing, and that is that before or during the act there was reverse peristalsis in the upper part of the small bowel. That reverse waves in the bowel commonly do precede vomiting has been shown by several physiologists, and it is well known to surgeons.

So far as we can learn from looking through the literature, only one or two investigators have found signs of disease of the biliary tract in patients with migraine, and they did it by examining sediments from material obtained through a duodenal tube with the Lyon technic. Actually, we doubt whether those men who have made a particular study of disease of the liver would accept such evidence as conclusive.

Against the idea that the liver is diseased in cases of migraine is the evidence gathered through the years by one of us (W. C. A.) with the Rowntree-Rosenthal test, which time and again failed to show any sign of defective function. The experience of years has left the impression also that the removal of even a badly diseased gallbladder seldom alters the frequency or severity of attacks of migraine.

A while ago it occurred to the senior author that, if disease of the liver is really a common cause of migraine, the incidence of this type of headache should be high in cases of frank and easily demonstrable disease of the liver. Accordingly, the junior author searched the histories of 215 patients (152 men and sixty-three women) who had been found to be suffering with definite hepatic or biliary tract disease. The commonest diagnoses made in these cases had been cirrhosis, jaundice of the obstructive, intrahepatic, hemolytic or familial types, cholangitis, primary hepatic insufficiency, and carcinoma of the liver.

Twenty-seven per cent of these 215 patients mentioned a tendency to headache, but in only 7 per cent (of the whole group) was this definitely migrainous in character. In order to get a control series, 216 histories, selected only so far as they did not reveal signs of hepatic or biliary disease, were drawn at random from the file of patients seen in the same two sections of the clinic in which most of the patients with hepatic and biliary disease were studied. There were 112 males and 104 females, and the ages ranged from 16 to 75 years, about as they did in the first group. The commoner diagnoses made had been duodenal ulcer, neurosis, hypertension, arthritis, and leiomyoma of the uterus. Thirty-one per cent of these patients complained of headache and 14 per cent complained of migraine.

These figures indicate that migraine was encountered twice as frequently in the control group of cases as in the cases of liver injury. The figures certainly do not support the idea that disease of the liver is the cause of migraine. If they indicate anything, it is that disease of the liver protects the patient from migraine. In this connection it is interesting to note that Dr. Hertzler tells us that the only time in his life when he was free from migraine was when he was jaundiced. Dr. Hensch knows a man who had a similar experience.

Careful study of the sixteen cases in which migraine and liver disease were associated showed that in eight the migraine either disappeared or became less severe after the disease in the liver made its appearance. Two men with an intrahepatic type of jaundice had only rare and mild headaches after the onset of the disease in the liver. In one case the relief of the headaches came several months before jaundice appeared, showing that the beneficial effect came from the hepatitis and not from the presence of bile in the blood.

Another man who had suffered with migraine all his life became almost cured when he developed signs of cirrhosis of the liver. A man who had had severe migraine since puberty was completely relieved for two years after the onset of attacks of cholecystitis with jaundice. A life long migraine of three other patients with cirrhosis of the liver or cholecystitis with stones was greatly helped by the onset of the new disease.

SUMMARY

Probably because they so often vomit bile, patients with migraine commonly place the blame for their distress on some trouble with the liver.

A search through the literature showed but little evidence in support of this theory. If it were correct, patients with cirrhosis of the liver and diseases of the biliary tract should be highly subject to migraine. A study of the records of 215 such patients showed that 7 per cent had suffered with migraine. In a control group of 216 histories of patients without demonstrable disease in liver or bile ducts, none had been made of migraine in 14 per cent.

In the group of patients with liver disease, half of the patients with migraine either lost the headaches or had fewer and milder ones after the appearance of jaundice or other symptoms of cirrhosis or biliary tract disease. The evidence indicates, then, that if disease of the liver and its ducts has any effect on migraine it is a beneficial one.

A CONVENIENT METHOD FOR ADMINISTERING CONCENTRATED OXYGEN IN THE TREATMENT OF MIGRAINE

ARTHUR KOFFLER, M.D., STAMFORD, CONN.

In accordance with the suggestion of Alvarez,¹ the inhalation of pure oxygen is being used in the treatment of migraine. It is therefore appropriate to call attention to the feasibility of using the ordinary basal metabolism testing apparatus for the administration of concentrated oxygen.

The apparatus is arranged as for testing the basal metabolic rate except that the kymograph and recording device are not started. The oxygen bell is watched and refilled as necessary.

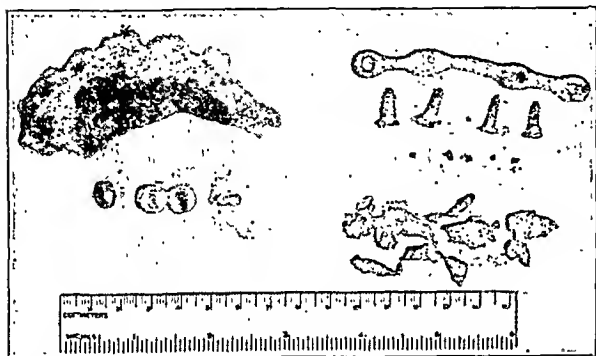
This method of administering concentrated oxygen has proved a very convenient office procedure.

71 River Street.

1. Alvarez, W. C.: A New Treatment for Migraine, *Proc. Staff Meet., Mayo Clin.* 14: 173 (March 15) 1939.

FIXATION OF FRACTURE WITH METAL PLATE:
AN UNUSUAL CASEHARVEY M. ANDRE, M.D., BATTLE CREEK, MICH., AND
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The advisability of using metal plates and screws in the fixation of fractured bones has long been a controversial subject. Hamilton Bailey¹ pointed out that metal causes rarefaction of bone. Jones and Lieberman² found that impure metals and alloys of unknown composition gave varying reactions in bone. They also found that rustless steel alloys vary in composition and that there is much soft tissue reaction about the metals used. This reaction they related to metallic corrosion. Rugh³ in his experiments found that iron, steel, copper and zinc, which are readily oxidized by the body fluids, frequently cause aseptic suppuration, while silver, gold and tin were unaffected by body fluids. Venable, Stuck and Beach⁴ performed extensive experiments and found that electrolysis occurs when different metals are placed in tissues and that pure metals alone are inert. They concluded that



Fibrous sac, resembling a gallbladder, containing grayish brown fluid and three small "stones" removed from a thigh twelve years and eight months after fixation of a fractured femur with a Lane plate. Metal plate, screws, small pieces of metal and pieces of thickened periosteum are shown at the right.

electrolytic action causes the formation of irritating metallic salt solutions in local fluids. The reaction against it leads to the excessive proliferation of cellular and fibrous tissue, which is protective, and the inhibition of some which is destructive. In view of the foregoing conclusions and experimental results, we present this case because of its unusual aspects and as a matter of record:

REPORT OF CASE

One of us, H. A., was struck by a car April 15, 1926, being 14 years of age at the time. An oblique simple fracture of the left femur was sustained, at the junction of the upper and middle thirds. An open reduction was performed, fixation being maintained with a Lane plate. Seven weeks after reduction, the patient was started walking, the plaster cast having been removed one week previously. A fall was sustained the day walking was begun and the femur bowed laterally to a marked degree with no separation of the fragments. The bone was straightened manually to a nearly normal anatomic alignment, with no detectable shortening. The cast was recapplied for another eight weeks. Weight bearing was then cautiously begun with the use of crutches. Convalescence continued without incidence. Within the next three years the patient grew rapidly and 1½ inches (3.8 cm.) shortening of the left femur occurred. The heels of his shoes were reconstructed to compensate for this deformity and no further trouble was experienced for twelve and one half years.

From the Orthopedic Department of Butterworth Hospital, Grand Rapids.

1. Bailey, Hamilton: *Lancet* 1: 820-821 (April 20) 1929.
2. Jones, Laurence, and Lieberman, B. A. Jr.: *Integration of Bone and Various Metals*, *Arch. Surg.* 32: 990-1006 (June) 1936.
3. Rugh, J. T.: *J. Bone & Joint Surg.* 10: 722-723 (Oct.) 1928.
4. Venable, C. S.; Stuck, W. G., and Beach, Asa: *Ann. Surg.* 105: 917 (June) 1937.

Dec. 31, 1938, a dull pain was experienced over the old fracture site. There was also a "snapping" sensation experienced with each step. On examination a small mass about the size of a walnut was palpable in this area. The mass was soft, slightly fluctuant, nontender and with no redness. Attempts at aspiration were unsuccessful.

Jan. 3, 1939, the patient was taken to the operating room, where the mass and plate were removed by C. H. S. The bulging mass was encountered at once beneath a thin subcutaneous fibromuscular layer of tissue. When this was opened, some gray-brown fluid and three "stones" the size of small marbles were removed. The sac had the appearance of a gallbladder with stones and went down to the periosteum and the lowest screw in the plate. The sac was removed. The periosteum covering the remainder of the bone plate, when incised, disclosed more gray-brown fluid. Two screws were loose but in place. The other two screws were still solidly fixed in position. The screws and plate were removed. The periosteum was discolored and slightly thickened, and small flakes of iron (?) from the bone plate were removed. The wound was thoroughly cleansed and closed. Recovery was uneventful.

Pathologic examination revealed the muscle and fascia to have a chronic inflammatory reaction. The "stones" had a center composed of darkly stained tissue and old blood, surrounded by a thick fibrous wall.

COMMENT

In the case here presented an unusual reaction was manifested about a metal plate used in the fixation of a fractured femur twelve years and eight months after reduction had been performed.

Special Article

THE PHARMACOPEIA AND THE
PHYSICIANTHE TREATMENT OF COLIC
IN INFANTSFRANK C. NEFF, M.D.
KANSAS CITY, MO.

This is one of the second series of articles written by eminent authorities for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopoeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—ED.

Few common disturbances in infancy are so distressing to members of the immediate family, so puzzling and worrisome to the physician and nurse but so free from untoward consequences to the patient as the paroxysms of so-called colic. The majority of babies have more or less of this during the first two to five months of life, a time which might well be called the hypertonic period of early infancy.

In actual practice it has been found that time-honored household remedies are ineffective, and the practitioner has not always found it simple to furnish relief. However, medical treatment and the maintenance of a special regimen can be entirely successful. The handling of truly neuropathic infants will require a somewhat different procedure.

NORMAL BEHAVIOR IN NEWBORN PERIOD

The newborn infant begins with those behavior patterns which persist from fetal life, namely, inborn reflexes. He acquires new patterns, sometimes design-

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nated as conditioned responses, which are related to the experiences of the changed environment, some due to dependence on the mother and others to the new independent existence. The neonatal brain is highly sensitive and plastic, responding, as it seems to the observer, in an unduly active manner to impressions. As a new, freshly charged electric battery will cause the starter to react immediately and vigorously, so the brain and nervous system of the normal infant in the early months of life respond intensively to transmit impulses throughout the body.

Under a quiet, undisturbing, favorable environment the newborn infant in the nursery tends to be drowsy except for a short period before meals. One gains the opinion that vigorous crying is apt to come from the more physically mature specimens. But the attack of unexplained crying may stop as suddenly as it began through such an expedient as placing a rubber nipple in the mouth or turning the infant quietly to the prone position. The newborn often display some evidence of discomfort on being handled, especially if the head or legs are flexed forward.

The Startle Reflex.—Significant in newborn infants is a phenomenon which can be brought out easily by the observer who sharply strikes the sides of the crib or the mattress close to the infant's head. This startle reflex of the body, sometimes called the "embrace reaction," first described by Moro,¹ of Heidelberg, is found to appear in infants at about the sixth day, reaching its height at about 1 month and persisting for three months or more. It consists of a prompt spreading of the arms, followed by a bowing or arching of both of them as they are brought forward toward each other, often with an accompanying vibration of the forearms.

Other somatic movements also occur. The gradual disappearance of this reflex is probably due to conditioning through the development of inhibitions. McGraw² has discussed the subject of this reflex and the progressive changes in the pattern. Crying is usually an accompaniment of the manifestation. Moro thinks that the phenomenon is doubtless dependent on frightening the child.

BEHAVIOR FOLLOWING THE NEWBORN PERIOD

Generally within a few days after the infant has been removed from the hospital, about its third or fourth week, he becomes more wakeful, more restless and more easily disturbed, and the tendency to cry suddenly develops without warning or apparent cause. It has long been the custom to regard these piercing outbursts as due to intestinal pain, possibly from distention by gas or from the effect of indigestion. Other explanations popular in the home ascribe the crying to gastric discomfort from ingestion of air, to hunger pains from inadequate breast or bottle milk, to unsuitable food, to nervousness of the nursing mother, to a lack of richness in the breast milk, if a formula is being fed, to the fact that it does not agree with the child—a fact which should be obvious if there are undigested stools.

Conditions are not bettered by changes in the frequency of feeding hours or by new types of food. If the child has been obviously underfed more food should be used; but it may not improve the nervous conditions. Undernourishment can easily result from the frequent, unwise changes.

INTERPRETATION OF COLIC

It has seemed to me for several years that the piercing cry or screaming of the young infant should be considered a feature, an outgrowth of the startle reflex, or a physiologic reaction comparable to it. The fact that colic disappears at from 3 to 5 months of age can be explained on the basis of the development of inhibitions. It has been stated that there are progressive changes in the pattern of the Moro reaction. As already mentioned, the height of the motor responses to this reflex is found at about 1 month of age, and the feature of immoderate crying may remain for several months as a method which the infant has for meeting situations which startle.

The infant is more apt to have paroxysms of screaming if staying in the home than in the hospital. In the narrow walls of the bedroom the crying of the infant reacts on the mother, so that she may be constantly in tears and lose sleep and appetite, all of which would undoubtedly interfere with her milk production. This emotionalism is present in most young mothers in the early months, a result possibly of the state of glandular exhaustion following pregnancy. When the infant screams, the mother cries; this likewise seems natural, since the infant was so recently physically united to the mother. Whether the emotional state makes the supply of breast milk inadequate—and it would seem possible—the mother can hardly be fit to manage the situation.

IMPROVING THE ENVIRONMENTAL CONDITIONS

A complete change in the management of the infant is needed. The most important is the establishment of absolute quiet. The average home in urban communities is not conducive to the undisturbed sleep of an infant during the time of day when colic is proverbial, from early afternoon till 10 p. m. or later. There have been many attempts to explain the fact that most infants will have their crying paroxysms at this hour. They may sleep deeply from exhaustion for the remainder of the night and the forenoon. One attempted explanation has assumed that there is a marked decrease in the maternal milk in the latter half of the day. But the infant may continue to be disturbed when additional food is furnished in abundance.

It is more probable that in the interruption of the orderliness and quiet of the home the infant is actually disturbed and startled. The complex mechanism and program in the home consist of many factors too numerous to enumerate, the chief being the door bell, the radio, the telephone, the activities of various members of the household, the visits of friends, the many services from tradesmen and the street noises. These disturb not only the infant but the mother. Lights are often kept burning so that the mother may see that the infant is covered or breathing. An infant rests better in a darkened room, especially during the hypertonic period. Most voices are sufficiently loud, sudden or harsh to awaken the infant with a start. One can demonstrate this easily in the physician's office by raising the tone of voice; one can show likewise the sedative influence by speaking in low quiet tones in quieting the infant's cry.

The infant should be kept in a well ventilated and softly lighted room; there should be freedom from overdressing and from unhygienic conditions such as wet soiled clothes. Many of these infants cry all during the arduous daily bath, which should be reduced to a few minutes.

1. Moro, E.: Das erste Trimenon, München. med. Wchnschr. 65: 1147-1150, 1918.
2. McGraw, Myrtle B.: Growth: A Study of Jimmy and Johnny, New York, D. Appleton-Century Company, 1935, p. 58.

It is well to avoid unnecessary handling, but the child should be taken up and held quietly and gently for a period before and during feeding. He may be given adequate outdoor air and sunshine in suitable weather at a regular hour daily. A minimum of attention directed by adults toward this infant will quiet the condition. All handling should be done slowly and without startling, the movements of the attendant resembling that of slow motion as seen occasionally in the movies. It should be borne in mind that the "colicky" baby should not be jiggled, rocked or shaken.

TECHNIC OF FEEDING

When the feeding time comes it is well for the mother to take the infant to a quiet dimly lighted bedroom where nothing will interfere with the natural drowsiness which should develop by the time the food is taken. With the child held nearly upright during feeding less air is swallowed, and its escape is favored early.

Since the hypertonic state has no relation to a food disturbance, any normal complete dietary suitable for the infant will suffice. It is unnecessary to change from the breast to the bottle, but mixed feeding may be indicated because of insufficient breast milk. Regularity in hours of meals gives the child an opportunity to sleep as long as possible between feedings, preferably in these cases at four hour intervals.

The infant fed adequately on the bottle needs no change in the composition of the food. If the infant's disturbance were due to intestinal discomfort, the simple change for the better which occurs in a hospital environment would not take place. In the hospital there is little disturbance by handling, because of the policy of *laissez faire* and the absence of the members of the family. The abrupt change from an environment of tired and worried relatives seems to be effective in a short time.

But it is not necessary in most instances to remove the infant to the hospital if home habits are at once changed. Walking the floor, swinging and patting the infant are causes of disturbances which must be discontinued. In order to get freedom from all noises, especially loud voices and the slamming of doors, the physician should give careful directions. The child must be treated with gentleness. Most infants when guarded in the foregoing manner show a prompt response and need only to be kept on such a regular, quiet schedule.

In addition to the aforementioned changes in program, sedative drugs are needed and are found to act promptly and often spectacularly. The relief does not come from their anodyne action but from their sedative effect.

MEDICINAL TREATMENT

The sedative brings prompt relief, often from the first few doses. It should be given regularly every four hours for several days. I feel that basing the dosage on the age is safe and entirely satisfactory. The dose estimated should be given, and after quiet has been produced the amount may be reduced. An additional half dose may be repeated within an hour or two if needed. It may be found that not all infants of the same age need exactly the same dose. The amounts suggested in the accompanying table have been found from experience to be sufficient. I shall limit the list of drugs to four, believing that it is better to learn the action of a few which have been proved.

The choice of sedative is in the order named in the table. The best results have been from soluble phenobarbital (phenobarbital sodium), which may be given

safely. It adds to the action of the drugs administered to see that they dissolve well, have an unobjectionable flavor and have a syrup for the principal vehicle. When these doses are employed in prescription form, the types of mixture presented here have proved excellent from

TABLE 1.—Dosage of Four Sedatives for Colic

Age in Weeks	Soluble Phenobarbital (Phenobarbital Sodium)		Atropine Sulfate		Codeine Sulfate		Camphorated Tincture of Opium
	Grain	Gram	Grain	Gram	Grain	Gram	Minims Cc.
2	$\frac{1}{4}$	0.01	$\frac{1}{2000}$	0.00003	$\frac{1}{50}$	0.003	10 0.61
4	$\frac{1}{2}$	0.013	$\frac{1}{1500}$	0.00004	$\frac{1}{45}$	0.004	15 0.92
8-20	$\frac{1}{4}$	0.016	$\frac{1}{1200}$	0.00005	$\frac{1}{42}$	0.005	20 1.23

the standpoints of therapeutic results, solubility, taste, permanence and other pharmaceutical requirements.

In writing the prescription, the physician should remember that an ounce of the usual liquids makes only 6 to 7 teaspoonfuls of standard size.

PRESCRIPTION 1.—Soluble Phenobarbital

		Gm. or Cc.	
R	Soluble phenobarbital	0.25-0.40	gr. iijss-vss
	Peppermint water	15.00	fl. 5 iv
	Aromatic elixir .....to make	90.00	fl. 5 iii
A teaspoon contains from 0.01 to 0.02 Gm. (one-sixth to one-fourth grain) of soluble phenobarbital.			
Label: One teaspoonful every four hours before feeding.			

Atropine sulfate is fully soluble and has no unpleasant taste. For safety of administration it should not be given in drop doses in the home. Prescription 2 is pleasing and unobjectionable.

PRESCRIPTION 2.—Atropine Sulfate

		Gm. or Cc.	
R	Atropine sulfate	0.0007-0.0015	gr. $\frac{1}{500}$ - $\frac{1}{400}$
	Cinnamon water	15.00	fl. 5 iv
	Aromatic elixir .....to make	90.00	fl. 5 iii
A teaspoon contains from 0.00003 to 0.00006 Gm. ($\frac{1}{20000}$ to $\frac{1}{40000}$ grain) of atropine sulfate.			
Label: One teaspoonful every four hours before feeding.			

Codeine has a sedative effect. The sulfate or phosphate may be used (prescription 3).

PRESCRIPTION 3.—Codeine Sulfate

		Gm. or Cc.	
R	Codeine sulfate	0.072-0.15	gr. $\frac{1}{35}$ - $\frac{2}{35}$
	Cinnamon water	15.00	fl. 5 iv
	Aromatic elixir .....to make	90.00	fl. 5 iii
A teaspoon contains from 0.003 to 0.004 Gm. (one-twentieth to one-fifteenth grain) of codeine sulfate.			
Label: One teaspoonful every four hours before feeding.			

In "colic" of the hypertonic period it has been found that atropine alone may not give the brilliant results that it does in the pylorospasm (vomiting) of the truly neuropathic infant. Atropine and codeine may be used together by combining the two prescriptions just given, and administering from one to two teaspoonfuls before each feeding until quiet is obtained.

Camphorated tincture of opium ("paregoric") may well be used in an emergency, because of its availability, for it is usually found in the home. Often the first call for relief by the screaming infant is late at night when it is hard to find an open drugstore. The taste of camphorated tincture of opium is somewhat unpleasant, especially to adults, who as parents may think it unsuitable for a young infant. This in fact

may be the explanation for the small inadequate doses, such as a few drops, which have been common for infants. Furthermore, when mixed with water the murky appearance adds to its objections. In the home the mother should be advised to drop the amount ordered into a small wine glass and mix with a teaspoonful of corn syrup. This may then be given with a dropper. A combination which serves well for a sedative is given in prescription 4.

PRESCRIPTION 4.—*Camphorated Tincture of Opium*

	Gm. or Cc.	
Rx Camphorated tincture of opium.....	15.00	fl. ʒ iv
Compound tincture of lavender.....	7.50	fl. ʒ ii
Aromatic syrup of rhubarb.....to make	60.00	fl. ʒ ii
One fluidrachm contains 0.92 cc. (15 minims) of camphorated tincture of opium.		
Label: One-half to one teaspoonful in an equal amount of corn syrup, with dropper, and repeat as ordered.		

I have seen no habituation or toxic effects from the use of soluble phenobarbital, codeine or other sedatives. Atropine sulfate may cause fever or an erythema in the larger doses in infants who have an idiosyncrasy to it. Obviously there will be no occasion for long continued, regularly administered sedatives for colic. They often have a cumulative effect, so it is possible to interrupt the medication from time to time. The attacks tend to disappear as the infant gets older.

The mother sometimes calls to say that the dose of medicine does not quiet the baby. It may be that the baby has regurgitated the medicine. In any event, one may repeat any of the foregoing doses in such cases within an hour, for an additional dose is more advisable than an increase in the concentration of the drug in the prescription.

For the relief of abdominal distention, which occurs in a small percentage of cases, whether accompanied by constipation or by loose stools, the sedative may be sufficient. An enema is likewise effective, salt solution (sodium chloride one teaspoonful to a pint of warm water) being employed. To get the best results it is suggested that the infant be placed in the prone position with the hips elevated. A well lubricated catheter, size 20 to 24 F., attached to a soft bulb or fountain syringe is introduced for 2 or 3 inches and the water allowed to enter slowly. Kneading the abdomen will assist in reducing distention.

Twenty years ago Haas³ reported a number of instances of what he termed "the hypertonic infant." The characteristics were colic, rigidity, overaction of the involuntary muscles, vomiting, visible peristalsis, constipation, imperfect nutrition, general irritability, insomnia and crying. The syndrome represented a neuropathic diathesis and pylorospasm. Such children are now rarely encountered. Haas's explanation was that the child belonged to the spasmophilic group in whom a stimulation of the autonomic nervous system existed. He emphasized the specific action of atropine sulfate in such cases.

CONCLUSION

Colic is a term to express paroxysmal pain in the colon or abdomen. Abdominal pain as a serious manifestation in infancy, if acute, is significant in its diagnostic importance for intestinal obstruction. Pain and tympanites due to diarrhea are not included in the scope of this discussion, for its treatment is that of the causative disease.

3. Haas, S. V.: The Hypertonic Infant: The Curative Action of Atropine on Certain of Its Manifestations, *Am. J. Dis. Child.* 15:323 (May) 1918.

Colic, in the sense that it is used in this article, does not refer to pylorospasm and vomiting or to the pathologic type known as the neuropathic diathesis of infancy, which were commonly discussed several years ago. If one reviews the index of the world's literature on pediatrics, as found in the *American Journal of Diseases of Children*, as well as textbooks, colic will not be found treated as an entity but only as a symptom.

"Colic," as a common manifestation found during the early part of infancy, is a paroxysmal manifestation of intensive crying which has been assumed, possibly without any method of proof, to be due to abdominal pain. It occurs in thriving infants as well as in those who may not be gaining, in breast fed infants as well as in bottle fed. Colic is an inappropriate term but sanctioned by popular usage. It will add to a better understanding of the management of infants if the condition is recognized as a hypertonic period through which most infants pass; its paroxysmal nature seems related to frightening or startling.

The treatment recommended is the installation and maintenance of a quiet environment, medical sedation for periods of a few days, and recourse to additional doses when necessary. The individual case may need a definite increase in the food intake.

315 Alameda Road.

Council on Foods

IN FORMULATING POLICIES REGARDING PROCESSED FOODS THE COUNCIL HAS BEEN COGNIZANT OF THE LACK OF SUFFICIENT DATA ON THE VITAMIN A CONTENT OF NATURAL FOODS. MILK AND DAIRY PRODUCTS ARE KNOWN TO BE IMPORTANT SOURCES OF THIS FACTOR. DATA ON THE CAROTENE AND VITAMIN A CONTENT OF MARKET MILKS HAVE BEEN OBTAINED BY PROFESSOR PETERSON AND HIS COLLABORATORS AT THE UNIVERSITY OF WISCONSIN AND ARE MADE AVAILABLE IN THE FOLLOWING REPORT, PUBLICATION OF WHICH HAS BEEN AUTHORIZED BY THE COUNCIL.

FRANKLIN C. BING, Secretary.

THE CAROTENE AND VITAMIN A CONTENT OF MARKET MILKS

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AND

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Estimates of the vitamin A requirements of the healthy adult vary markedly,¹ but it is generally believed that a good diet should provide from 3,000 to 4,000 U. S. P. units of vitamin A each day. Green, leafy vegetables provide appreciable quantities of provitamin A (carotene) but other excellent sources of vitamin A

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The following milk producers or distributors supplied monthly samples of milk for analyses: Hancock Dairy Company, Madison, Wis.; Bowman Farm Dairy, Madison, Wis.; Brook Hill Farm, Inc., Genesee Depot, Wis.; Gehl's Guernsey Farms, Inc., Genesee Depot, Wis.; Golden Guernsey Dairy Co.-Op., Milwaukee; Gridley Dairy Company, Madison, Wis.; Luick Dairy, Genesee Depot, Wis.; and Wern

1. Booher, Lela E.: Vitamin A Requirements and Practical Recommendations for Vitamin A Intake, *J. A. M. A.* 110:1920-1925 (June 4) 1938. Jeghers, Harold: The Degree and Prevalence of Vitamin A Deficiency in Adults, *ibid.* 109:756-762 (Sept. 4) 1937. New and Non-official Remedies, Chicago, American Medical Association Press, 1933, pp. 484-485. Fraps, G. S., and Treichler, R.: Vitamin A Content of Foods and Feeds, *Bull.* 477, Agricultural and Mechanical College of Texas, Agricultural Experiment Station, 1933. Cameron, Hazel C.: The Effect of Vitamin A upon Incidence and Severity of Colds Among Students, *J. Am. Dietet. A.* 11:189-204 (Sept.) 1935.

such as milk and dairy products which contain butter fat are usually relied on to supply significant amounts of the normal requirements. While there are numerous reports on the carotene and vitamin A contents of milk produced under experimental conditions² and a few analyses of isolated samples of market milks,³ there are no published data dealing with a large volume of market milk over an extended period of time. Most workers report potencies between 10 and 60 U. S. P. units per gram of butter fat, but a few values fall outside these limits.

Because of the increasing interest in the vitamin A potency of milk and the efforts being made to improve the quality of winter milk, it seemed desirable to make a systematic and long time survey of a large milk supply. For this purpose commercial milks from four Milwaukee and four Madison distributors were obtained. Quart samples were taken at random from large tanks in which several thousand gallons had been blended; hence the sample was representative of the milk actually sold to the public. Four types of commercial milk were analyzed: 1. Market milk, often called grade A milk, the mixed milk from several breeds of cattle. Approximately 75 per cent of the cows were Holsteins and the remainder were mainly Guernseys. 2. Vitamin D milk, usually a mixed market milk, treated in such a way as to have a certain vitamin D potency. 3. Guernsey milk. 4. Certified milk. Herds producing certified milk are probably fed a better than average grade of forage during the winter months. Collection and analysis of samples began in January 1938 and continued through June 1939. The data reported in the tables and figures represent 345 samples of milk.

EXPERIMENTAL

Analytic Methods.—Carotene and vitamin A were determined on the fluid milk as outlined by Olson, Hegsted and Peterson.⁴ The nonsaponifiable fraction was examined for carotene and vitamin A spectrophotometrically after the method of Stenbock and Baumann.⁵ The value $E_{1\%}^{1\text{cm.}}$ 328 $m\mu$ = 1,600 was used in the calculation of the vitamin A. Recent data suggest that values other than 1,600 should be used. If some other figure is finally adopted the data provided in this paper can be converted by means of a suitable factor. The data are given as micrograms (thousandths

of a milligram) of carotene and vitamin A. If it is assumed, as seems justified from recent investigations,⁶ that vitamin A has twice the potency of carotene weight for weight, the total potency of milk can be expressed as micrograms of either carotene or vitamin A. In this paper the potency has been expressed in terms of vitamin A. The U. S. P. or international unit is 0.6 microgram of carotene, which on the foregoing basis is equivalent to 0.3 microgram of vitamin A. Values recorded in micrograms can be readily converted into U. S. P. units by dividing carotene figures by 0.6 and vitamin A figures by 0.3. For example, a milk containing 6 micrograms of carotene per gram of butter fat (10 U. S. P. units) and 12 micrograms of vitamin A (40 U. S. P. units) on this basis of calculation has a total vitamin A potency of 15 micrograms (50 U. S. P. units).

Butter Fat.—Because it is conventional to express the vitamin potency in terms of butter fat, it is necessary to know the percentage of fat if the vitamin potency of the fluid milk is to be calculated. The data

TABLE 1.—Average Butter Fat Content of Milk

Dates	Market, per Cent	Vitamin D, per Cent	Guernsey, per Cent	Certified, per Cent
1938				
January.....	3.8	3.8	4.7	3.7
February.....	3.8	3.7	4.3	4.0
March.....	3.5	3.5	4.5	3.6
April.....	3.6	3.8	4.3	4.0
May.....	3.7	3.6	4.5	3.8
June.....	3.6	3.6	4.4	3.7
July.....	3.4	3.5	4.3	3.8
August.....	3.4	3.6	4.2	3.9
September.....	3.5	3.5	4.4	3.8
October.....	3.5	3.4	4.3	3.9
November.....	3.5	3.6	4.4	3.8
December.....	3.4	3.5	4.3	3.9
1939				
January.....	3.4	3.4	4.3	3.8
February.....	3.5	3.4	4.4	3.9
March.....	3.5	3.6	4.3	3.6
April.....	3.5	3.6	4.4	3.7
May.....	3.4	3.3	4.2	4.0
June.....	3.5	3.7	4.4	3.9
Averages.....	3.5	3.6	4.4	3.8
Total number of samples...	119	74	93	50

for butter fat over the eighteen months of the survey are given in table 1. As expected, the figures for market and vitamin D milks are practically the same throughout the eighteen months. The certified milk was higher in fat by 0.3 per cent than the market milk. The herds producing these milks probably contained a higher percentage of Guernsey and Jersey cattle than those of the market milk. The Guernsey milk on the average was higher in fat by 0.9 per cent than the market milk, a difference which is equivalent to about 25 per cent.

CAROTENE AND VITAMIN A CONTENT OF MILKS

Market Milk.—During the first four months, samples were obtained only from the Madison distributors; but since these samples are indicative of the general seasonal trend they are averaged to form the first part of chart 1 instead of being considered separately. The carotene content dropped to a minimum, 3.1 micrograms per gram of butter fat, in March. The decrease to this minimum was slow because the biggest drop had occurred before these samples were taken, i. e. imme-

2. Baumann, C. A., and Stenbock, Harry: Fat-Soluble Vitamins: XXXVI. The Carotene and Vitamin A Content of Butter, *J. Biol. Chem.* 101: 547-560 (July) 1933. Booth, R. G.; Kon, S. K.; Dann, W. J., and Moore, Thomas: A Study of Seasonal Variations in Butter Fat: I. Seasonal Variations in Carotene, Vitamin A and the Antimony Trichloride Reaction, *Biochem. J.* 27: 1189-1196 (No. 4) 1933. Gillam, A. E.; Heilbron, I. M.; Morton, R. A.; Bishop, Gerald, and Drummond, J. C.: Variations in the Quality of Butter, Particularly in Relation to the Vitamin A, Carotene and Xanthophyll Content as Influenced by Feeding Artificially Dried Grass to Stall-Fed Cattle, *ibid.* 27: 878-888 (No. 3) 1933. Watson, S. J.; Bishop, Gerald; Drummond, J. C.; Gillam, A. E., and Heilbron, I. M.: The Relation of the Color and Vitamin Content of Butter to the Nature of the Ration Fed: I. Influence of the Ration on the Yellow Color of the Butter: II. The Carotenoid and Vitamin A Contents of the Butter, *ibid.* 28: 1076-1085 (No. 3) 1934. Peterson, W. H.; Bohstedt, G.; Bird, H. R., and Beeson, W. M.: The Preparation and Nutritive Value of A. I. V. Silage for Dairy Cows, *J. Dairy Sci.* 18: 63-78, 1935. Frazer, G. S.; Copeland, O. C., and Treichler, R.: The Vitamin A Requirements of Dairy Cows, *Bull.* 495, Agricultural and Mechanical College of Texas, Agricultural Experiment Station, 1934. Booth, R. G.; Kon, S. K., and Gillam, A. E.: The Relative Biological Efficiencies of Vitamin A and Carotene of Butter, *Biochem. J.* 28: 2169-2174 (No. 6) 1934. Coward, Katherine H.: Biological Standardization of the Vitamins, Baltimore, William Wood & Co., 1938. Baumann, Stenbock, Beeson and Rupel.³

3. Morgan, R. S., and Pritchard, H.: The Average Vitamin A and Vitamin D Potency of Butter, *Analyst* 62: 354-362 (May) 1937. Wilkinson, H.: The Vitamin A and Vitamin D Contents of Butter: II. Seasonal Variation, *ibid.* 64: 17-23 (Jan.) 1939.

4. Olson, F. R.; Hegsted, D. M., and Peterson, W. H.: Determination of Carotene and Vitamin A in Milk, *J. Dairy Sci.* 22: 63-66, 1939.

5. Baumann, C. A.; Stenbock, H.; Beeson, W. M., and Rupel, I. W.: Fat-Soluble Vitamins: XXXIX. The Influence of Breed and Diet of Cows on the Carotene and Vitamin A Content of Butter, *J. Biol. Chem.* 105: 167-176 (April) 1934.

6. Holmes, H. N., and Corlett, Ruth E.: The Isolation of Crystalline Vitamin A, *J. Am. Chem. Soc.* 59: 2042-2047 (Oct.) 1937. Mend, T. H.; Underhill, S. W. F., and Coward, Katherine H.: Crystalline Esters of Vitamin A: I. Preparation and Properties. II. Biological Potency, *Biochem. J.* 33: 589-600 (April) 1939.

diately after the herds were taken off pasture in the fall. The vitamin A content decreased to a minimum of 7.2 micrograms in April. The slight increase in carotene in April, before the increase in vitamin A, is explainable, since some herds were already on pasture in the latter part of this month and the carotene is the first

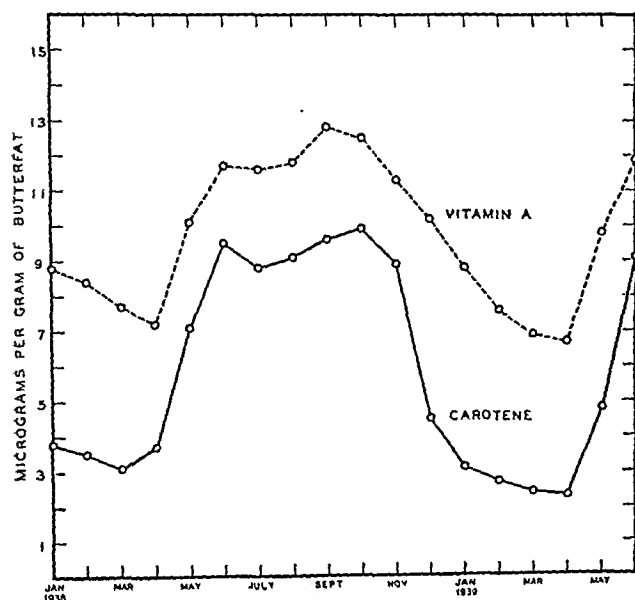


Chart 1.—Carotene and vitamin A content of Wisconsin market milks, Milwaukee and Madison distributors.

to respond to the change in feed. The drop in both carotene and vitamin A in July was probably due to the drying of the pastures. The meteorological charts for Milwaukee and Madison show that July had a lower precipitation than either June or August. After reaching a maximum for both carotene and vitamin A with

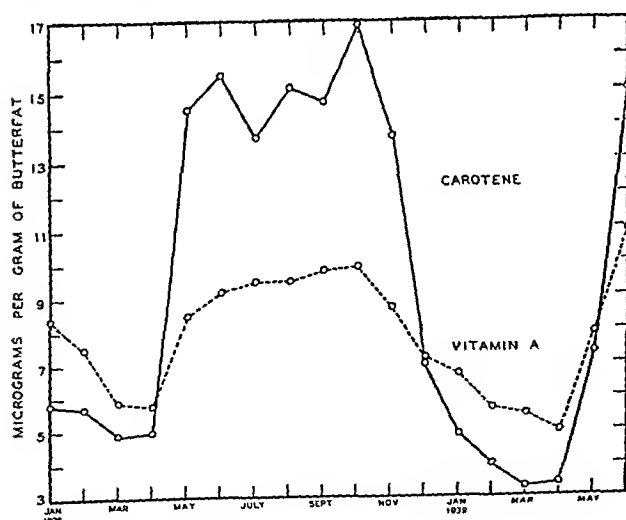


Chart 2.—Carotene and vitamin A content of Guernsey milk, Milwaukee and Madison distributors.

9.9 and 12.8 micrograms, respectively, in September and October, the milks dropped until a minimum was reached in April 1939. The decrease in carotene was more abrupt than in vitamin A, indicating the use of vitamin A stores in the animal body. The higher values obtained during the winter months of 1938 over 1939 were probably related to the better quality of corn silage put up in 1937 as compared with that made in 1938. Because of heavy rains in September 1938,

silage-making was delayed until the corn had matured too far and much destruction of carotene had occurred. The average carotene and vitamin A contents of pasture milks (June-October) were 9.4 and 12.1 micrograms per gram of butter fat, respectively. The 1939 winter milks (January-April) contained an average of 2.6 and 7.5 micrograms of the respective constituents.

The variation among the eight samples for any given time was considerable. For example, in June the highest sample contained 62 per cent more carotene and 46 per cent more vitamin A than the lowest. In January, when rations are much more alike, the variations were only 37 per cent for carotene and 11 per cent for vitamin A. The milk of no distributor was regularly high or low.

Vitamin D Milk.—The breeds and rations used for the production of vitamin D milk are usually the same as those used for the production of market milk. The samples analyzed had been enriched by one of three processes: irradiation, metabolism of irradiated ergosterol, or fortification with irradiated ergosterol. None of these processes affect the vitamin A potency of milk and hence the vitamin D milks had about the same

TABLE 2.—Vitamin A Potency of Milk
(U. S. P. Units per Quart)

	Date	Market	Vitamin D	Guernsey	Certified
1938					
January.....		1,323	1,362	1,731	1,350
February.....		1,262	1,392	1,442	1,510
March.....		1,000	951	1,232	1,200
April.....		1,008	1,003	1,163	1,292
May.....		1,652	1,875	2,350	1,622
June.....		1,938	1,841	2,438	1,967
July.....		1,772	1,514	2,208	2,000
August.....		1,816	1,936	2,340	2,096
September.....		2,005	1,791	2,463	2,102
October.....		1,997	1,793	2,578	1,906
November.....		1,802	1,900	2,378	1,970
December.....		1,383	1,391	1,493	1,650
1939					
January.....		1,141	1,197	1,238	1,274
February.....		1,026	1,062	1,103	1,321
March.....		924	961	1,009	1,276
April.....		900	915	960	1,263
May.....		1,351	1,192	1,463	1,963
June.....		1,880	2,062	2,637	2,418
Averages.....		1,461	1,471	1,800	1,618

vitamin A content as market milk. (Data not given in charts.)

Guernsey Milk.—Channel breeds of cattle, such as Guernsey and Jersey, produce milks higher in color (carotene) than the other breeds. However, the vitamin A constituent is less in these milks than it is in Holstein milk.⁵ The vitamin A contents of Guernsey winter milks (January-April) were 6.9 micrograms and 5.7 micrograms per gram of butter fat in 1938 and 1939, respectively (chart 2). The carotene contents at the same times were 5.4 and 3.9 micrograms per gram of butter fat. The abrupt rise in May of both years is due to the return of the cattle to pasture. During the pasture months of 1938 (June-October) the carotene content was 15.2 micrograms per gram of butter fat and the vitamin A content was 9.6 micrograms. Thus the carotene content is nearly tripled by the change to pasture, while the vitamin A content is increased only 40 per cent.

Certified Milk (chart 3).—Here, as in the other milks, there was seasonal variation, but it was not so great, since the winter milks did not reach such low levels as in the other cases, probably because feeds of better quality were used. During the winter of 1938 the milk contained 5.7 micrograms of carotene and 8.3

micrograms of vitamin A per gram of butter fat. In the summer of 1938 the carotene and vitamin A contents rose to 11.9 and 10.1 micrograms. The influence of the high proportion of channel breeds in the milk supply is reflected in the carotene curve. During the winter of 1939 the values obtained for carotene and vitamin A were 5.2 and 7.8 micrograms.

Milks from Other States.—Although this survey was primarily intended to study Wisconsin milks, a few butter fat samples from other states were analyzed. These samples were obtained from a large distributor in each state, and each sample was a composite representing between 5,000 and 6,000 cows. In New York, like Wisconsin, the herds were predominantly Holstein, while in Tennessee they were almost entirely Jersey. Results of the analyses are tabulated graphically in chart 4. Variations due to season are easily seen. The Wisconsin and New York climates are similar, neither having pasture until May; thus the peak does not come as early as in Tennessee.

Total Vitamin A Potency.—From the consumer's point of view it is more practical to express the vitamin A potency per unit volume of milk, e. g. quart, than per unit of butter fat. By the method of calculation already described, the values in U. S. P. units given in table 2 are obtained. The Guernsey milk has approximately 25 per cent more potency than the market or vitamin D milks. This difference is about the same as that which obtains with respect to their fat contents.

Certified milk, although containing less fat than the Guernsey milk, surpassed the Guernsey milk in vitamin A potency in the winter season. In summer it was distinctly lower and had about the same potency as market milk. In the pasture season the ration is about the same for all herds. In winter, however, the certified milks are higher in vitamin content, probably because

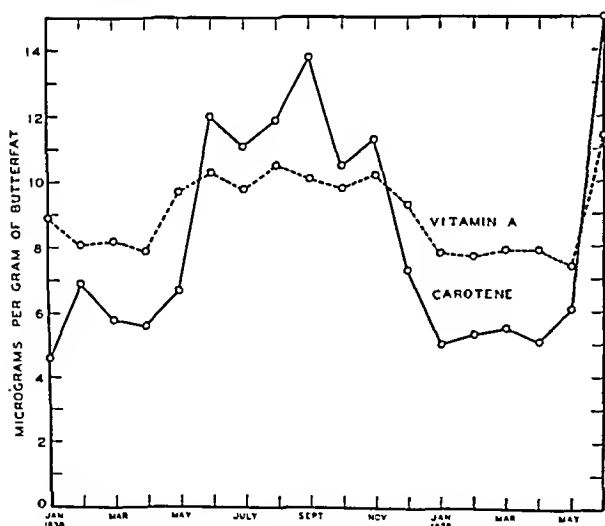


Chart 3.—Carotene and vitamin A content of certified milk, Milwaukee distributors.

the cattle are fed hay or silage high in carotene. It is probable that all winter milks could be improved by feeding a high carotene silage, such as that made from legumes.

SUMMARY

The carotene and vitamin A contents of milks marketed by eight large distributors in the Madison and Milwaukee areas of Wisconsin have been determined monthly during a period of eighteen months.

These milks fall into four groups: (1) market (mainly Holstein), (2) Guernsey, (3) vitamin D (mainly Holstein) and (4) certified.

All milks showed marked seasonal changes in both carotene and vitamin A contents. The seasonal changes in carotene were greater than those for vitamin A. The

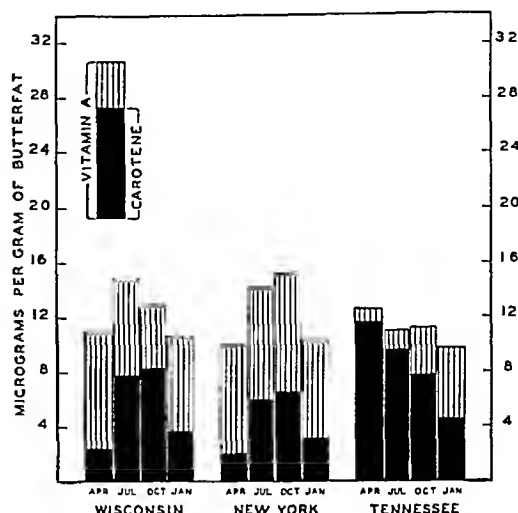


Chart 4.—Carotene and vitamin A contents of butter fat samples from three states.

milks were fairly similar in vitamin potency per gram of butter fat. Certified milks were somewhat higher than the other milks during the late winter months. Guernsey milk, because of its higher fat content, had a higher potency on the fluid basis than the others.

Per quart, the winter milks (January-April) averaged: market 327 micrograms (1,088 U. S. P. units), Guernsey 372 micrograms (1,241 U. S. P. units) and certified 400 micrograms (1,334 U. S. P. units). The corresponding figures for summer (June-October) were 572 (1,906), 727 (2,415) and 599 (1,995).

ACCEPTED FOODS

THE FOLLOWING ADDITIONAL FOODS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO ACCEPTED FOODS.

FRANKLIN C. BING, Secretary.

PREPARATIONS USED IN THE FEEDING OF INFANTS (See Accepted Foods, 1939, p. 156).

H. J. Heinz Company, Pittsburgh.

HEINZ BRAND STRAINED ASPARAGUS.

Analysis (submitted by manufacturer).—Moisture 91.0%, total solids 9.0%, ash (including sodium chloride) 0.5%, sodium chloride 0.1%, fat (ether extract) 0.3%, protein (N \times 6.25) 1.9%, crude fiber 0.8%, sucrose (Munson and Walker Method) 3.7%, carbohydrate other than crude fiber (by difference) 5.5%, calcium (Ca) 0.014%, phosphorus (P) 0.036%, iron (Fe) 0.0010%, copper (Cu) 0.00013%.

Calories.—0.32 per gram; 9.1 per ounce.

Vitamins.—Protocols of biologic assay submitted by manufacturer (1939) showed that this product contains 16.5 U. S. P. units of vitamin A, 0.31 international unit of vitamin B₁ and 0.55 Sherman-Bourquin unit of vitamin G (riboflavin) per gram; 468.6, 9.8 and 15.6 per ounce. Chemical titration (1939) showed that the product contains 0.24 mg. of ascorbic acid per gram, 5.6 mg. per ounce or 112 international units of vitamin C per ounce.

Mead Johnson & Company, Evansville, Ind.

MEAD'S PECTIN-AGAR IN DEXTRI-MALTOS, a powdered mixture of Mead's Dextri-Maltose No. 1 (containing 2 per cent sodium chloride),* pectin and Agar (U. S. P.).

Analysis (submitted by manufacturer).—Moisture 2.0%, total solids 98.0%, ash 2.5%, protein (N \times 6.25) 1.0%, crude fiber 0.3%, carbohydrates other than crude fiber (by difference) 94.2%.

Calories.—3.5 per gram; 99.3 per ounce.

* Mead's Dextri-Maltose No. 1 with 2 per Cent of Sodium Chloride is described on page 176, Accepted Foods, 1939.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

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SATURDAY, MAY 4, 1940

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.
2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.
3. The principle that the core of the public health and the provision of medical service to the sick is primarily a local responsibility.
4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.
5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.
6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.
7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.
8. Expansion of public health and medical services consistent with the American system of democracy.

THE NEW YORK SESSION

In 1917 the American Medical Association met in New York City, where in 1940 it will assemble again for its ninety-first annual session. In those days all the talk was of the War and of participation by the United States. The House of Delegates bade official farewell to Dr. Alexander Lambert, about to leave for France. The medical profession was concerned with plans for its own service. Before the War ended, some fifty thousand doctors had been intimately associated with medical military affairs. Chief among the topics before the House of Delegates was a report on social insurance—actually compulsory sickness insurance. The War ended much of that discussion; but the years passed, the crash came, the banks closed, unemployment and destitution increased, the problem of the aged was thrown into politics, the Social Security Law was devel-

oped, and again compulsory sickness insurance held the center of the stage. Notwithstanding the World War and the social problems of 1917, the scientific sections of the American Medical Association held their meetings, the Scientific Exhibit displayed some fifty contributions, and over six thousand doctors registered their attendance.

Now in 1940 a new war has engulfed nearly all the world; the United States has not become involved, although much of the rest of the world seems trembling on the brink of involvement. For preparedness, base hospitals are being organized throughout the nation; but it seems unlikely that military matters will come before the House of Delegates. True, the situation in Europe is reflected in the problem of the medical refugees, but years of experience have already indicated some significant factors involved in this question.

For almost a quarter of a century the medical profession has been maintaining high standards of medical care, opposing successfully all attempts to regiment, degrade or deteriorate its services. There is no reason to believe that the House of Delegates will abandon its repeatedly declared points of view or that it will recede one iota in its ideals. Indeed, all its tendencies have been toward strengthening the mechanisms by which its principles are maintained.

As medicine comes into the 1940 session the time before adjournment of the Congress seems but brief. Such legislation in the medical field as the Congress may enact will no doubt bear the reflection of the platform of the American Medical Association. Succeeding months will see our two great political parties assembling to select their candidates and to announce their platforms. The medical profession will observe with interest the extent to which those pronouncements reflect the fundamental features which the majority of physicians are convinced must be observed if medicine is to go forward in a democratic government.

In numbers, in scientific contributions, in exhibits, in new technics for graduate education, the 1940 session will far surpass that of 1917. During the last two years the increases in membership and in Fellowship have been rapid both in rate and in numbers. The Scientific Exhibit, which in 1917 was held on the balcony of the Hotel Astor, will this year demand more than an entire floor of the Grand Central Palace. And the meeting itself will ramify through a half dozen of the great hotels. Thus in the greatest city of the world, now holding the most remarkable World's Fair that has ever been constructed, will assemble what has come to be the largest and most important medical convention. The superlatives may seem grandiloquent, but only those who participate will realize how weakly they describe the greatness of the occasion.

JUVENILE NEPHRITIS AND LEAD
POISONING

Local practitioners have known for some time that in Queensland, Australia, large numbers of people die at an early age from kidney disease and that lead poisoning among children has been occurring constantly. This unusual state of affairs has been thoroughly investigated by L. J. Jarvis Nye of Brisbane, who sums up his evidence in a volume entitled "Chronic Nephritis and Lead Poisoning."¹ In the course of six years Nye studied 186 cases of chronic nephritis among persons under 40 years of age. Six of the patients were under 10 years of age and sixty-four were under 20. In the report by the federal authorities, among 100 persons with chronic nephritis examined, five were under 10 and forty-eight under 20 years of age.

These children, according to Nye, present a characteristic appearance with pallid wizened features, dry un nourished skin and stunted physical development. High blood pressure and some degree of retinitis are invariably present. In the late stages there is rapid pulse, well marked cardiac hypertrophy, accentuated second aortic sound and poor cardiorespiratory reserve. The appearance of the kidneys in these cases is typical of arteriosclerotic contracted kidneys of the diffuse sclerotic type. Nye emphasizes that in his histologic studies it was rare to find the glomerular tuft fused to the capsule. This suggests that the condition is not bacteriotoxic in origin but is due to another type of sclerosing agent which affects primarily the vessels and tubules, the glomeruli being secondarily involved. These observations are in accord with those of Battaglia,² who has done much experimental study with lead and who considers that the histogenesis of saturnine kidneys is that of vascular nephrosclerosis.

Nye's investigations made it apparent that there is present in Queensland some vascular sclerosing agent which does not operate to the same extent in other cities, that its effects are mainly demonstrable among the poor classes, and that it is more common in females. This factor was able to initiate a sclerosing process in childhood which, as years passed, produced all the well known stigmas of cardiovascular renal disease terminating eventually in uremia.

The source of lead poisoning among the children in Queensland was elucidated by the investigations of two Brisbane physicians, Lockhart Gibson and Jeffries Turner. These investigators made the observation that most of the children affected were nail biters. By the process of exclusion the source of poison was traced to the paint on the veranda railings. The characteristic feature of a house of the poor folk in Queensland is a large veranda the function of which is to afford protection from the rays of the tropical sun to the infants and children while the mother is away at work. The

railings are painted with white paint. The siccative action of the tropical sun dries up the linseed oil and leaves the pigment, which in this case is the very toxic lead carbonate, in the form of a chalky powder. "The scene of tiny infants clutching the railings as they watch the world from their first playground, then biting the ideal lodgment for paint, the fingernails, can be readily visualized."

The recognition of saturnism in the children of Queensland presents, according to Nye, little difficulty, for the picture is quite characteristic. The child is irritable and fretful. There may be loss of appetite, constipation, colic, characteristic pallor, weakness and pains in the legs and arms, terminating in actual paralysis. The distribution of paralysis is almost pathognomonic and constitutes the most characteristic diagnostic feature of plumbism. In children the lower extremities are always first to be affected. The paralysis is eventually bilateral. Cerebral manifestations, such as choreiform movements, convulsions and coma, are more common. Burton's blue line in the edge of the gums and punctate basophilia of the erythrocytes were regularly present in the author's series. In the majority of the cases the diagnosis was confirmed by the finding of lead in the urine in amounts greater than 0.04 mg. per hundred cubic centimeters.

Inquiry revealed that thirty-four patients who had suffered severely from plumbism with paralysis in childhood had all spent their childhood in wooden houses in contact with chalky paint. Eighteen were nail biters, eight were both nail biters and thumb suckers and four were thumb suckers; only four were without history of any such habit. Twenty-nine patients already had well established renal insufficiency. High blood pressure, urea retention and low urinary concentration were present in most and indicated that sclerosis had already commenced. Once nephrosclerosis is established, its progress is constant and relentless. In the cases investigated by the federal report and by the author, signs of kidney damage were observed in no less than 80 per cent of the cases of plumbism. The author concludes that every child suffering from lead poisoning is a potential subject of chronic nephritis in later life. He feels that the mass of correlated evidence establishes the guilt of white paint beyond any doubt as well as the damaging effects of lead on young tissue. He urges the desirability of the banishment of lead from the places which serve as the playground for children. The problem of lead poisoning in children, as well as in adults, is a challenge to paint industries. This challenge is being at least partly met by the substitution of nontoxic paints for the toxic white paint. The nontoxic paints are combinations of zinc and lead in the proportions of 40 to 60, or of lead, zinc and barium in the proportions of 60, 30 and 10. Titanium oxide in combination with zinc oxide presents the least toxic and the most practical combination so far.

1. Nye, Leslie John Jarvis: *Chronic Nephritis and Lead Poisoning*. Sydney, Australia, Angus & Robertson, Ltd., 1933.

2. Battaglia: *Policlinico (sez. med.)* 34: 133, 1927, quoted by Nye.

Current Comment

COMMITTEE DELAYS REPORT ON HOSPITAL CONSTRUCTION BILL

The Senate Committee on Education and Labor, April 23, unanimously approved a revised Wagner-George hospital construction bill. It was expected that thereafter the bill would immediately be reported to the Senate but there has resulted a delay. It is said that the committee will propose in the revised bill a six year program for the construction and maintenance of hospital facilities and will authorize annual appropriations of \$10,000,000 for construction and maintenance and \$500,000 for administrative expenses for each of the six fiscal years.

DENTISTRY CELEBRATES A CENTENARY

In March, dentistry celebrated in Baltimore the one hundredth anniversary of the beginning of its development as a science in the United States. In this celebration dentists from the nation participated in a joint meeting with the Maryland State Dental Association. Official delegates attended not only from the American Dental Association but also from each of the state societies, some of which were founded only within fairly recent years. The deans of some thirty-nine dental schools were also represented, the oldest being the Baltimore College of Dental Surgery, which was established in 1840. Many representatives of foreign and international societies attended. The most important development in the history of dentistry was perhaps the establishment of the first school—the Baltimore College in 1840. Shortly thereafter came the publishing of the *American Journal of Dental Science* and the formation of the American Society of Dental Surgeons. The progress of dentistry since that time, particularly in this country, has been phenomenal, indicating the great place which modern dentistry occupies in the promotion of human health. Today dentistry is a broad science with several highly specialized branches. The big problems before dentistry today are not so much problems of scientific research, for here it proceeds apace, but, as with medicine, problems of the distribution and the costs of dental service—the problem of making available for all of our people the most that dentistry has to contribute.

DEPLETION OF MARRIAGEABLE MEN BY WAR

One of the more serious effects of war is the depletion of young men and the disturbance of the ratios of marriageable males and females. In a recent brief review¹ of this subject in the Statistical Bulletin of the Metropolitan Life Insurance Company it was pointed out that 72 per cent of German military deaths and approximately 55 per cent of the French losses in the last great war were of men under 30. This situation was reflected in the postwar ratios of the two sexes.

1. Postwar Depletion of Ranks of Men at Marrying Ages, Statistical Bulletin Metropolitan Life Insurance Company 21:1 (Feb.) 1940.

The French census of 1911 showed substantially the same number of males as females in every five year age group; the 1921 census showed an excess of 261, 206 and 176 females per thousand males in the age groups 25 to 29, 30 to 34 and 35 to 39, respectively. In Germany likewise the prewar census of 1910 showed substantially equal proportions of males and females in each five year group. The 1925 census, however (the first taken by Germany after the war), showed an excess of 150 women per thousand men at ages 25 to 29, 259 per thousand at ages 30 to 34 and 181 per thousand at ages 35 to 39. Some of the results, such as the great increase in the proportion of marriages in the postwar period in which the groom was much older than the bride, were quite obvious. Another effect, although perhaps inextricably intertwined with economic factors, was the continued fall in the birth rate after the war. Clearly the actual battle losses are matched by losses in future population due to reductions in the birth rate. Furthermore, the relatively imponderable social effects of a deficiency of men, especially in certain age groups, must profoundly disturb the normal life of nations.

PEDESTRIAN PROTECTION

Twelve thousand five hundred pedestrians were killed in motor vehicle accidents in the United States in 1938. In cities of 10,000 people or more, pedestrian deaths amounted to more than 65 per cent of the total traffic deaths. At least 13 per cent of the pedestrians killed were intoxicated or had been drinking. The pedestrian death rate shows a wide variation for different age groups, 43.2 per cent of them having been persons 65 years of age or over. Elderly persons should be extremely cautious when they enter the street or highway. In its 1939 report the Committee on Pedestrian Control and Protection of the National Safety Council urges that every city and state undertake at once a comprehensive program of pedestrian accident prevention. Such traffic problems can occasionally be solved by the construction of pedestrian tunnels or bridges to separate vehicle traffic from the pedestrians; at least twenty cities have made such provisions. Pedestrian safety islands can be used in urban areas on wide roadways or intersections. Adequate street lighting should be provided in areas where studies of accidents have shown its need. Some cities use painted signs on sidewalks facing pedestrians as they approach crosswalks. The rural pedestrian should walk on the left hand side of the highway, facing the oncoming traffic. There is a definite need for sidewalks in rural communities, especially along highways leading to schools and churches. State officials should undertake pedestrian accident prevention programs and they should assist in developing a program of correcting physical hazards as well as habits of driver and pedestrian. In the business sections of cities, pedestrians should be required to cross only at intersections. Since Los Angeles and San Francisco have scoured obedience to traffic signals, their pedestrian mortality rates have been lowered. The obedience of pedestrians to such simple precautions influences their safe practices generally.

ORGANIZATION SECTION

THE NEW YORK SESSION

AMERICAN MEDICAL ASSOCIATION, NINETY-FIRST ANNUAL SESSION

NEW YORK, N. Y., JUNE 10-14, 1940

Events on the Program will be on Daylight Saving Time

OFFICIAL CALL

TO THE OFFICERS, FELLOWS AND MEMBERS
OF THE AMERICAN MEDICAL
ASSOCIATION

The ninety-first annual session of the American Medical Association will be held in New York, June 10-14, 1940.

The House of Delegates, will convene at 10 a. m., Monday, June 10. In the House the representation of the various constituent associations for 1938, 1939 and 1940 is as follows:

Alabama	2	New Hampshire	1
Arizona	1	New Jersey	4
Arkansas	2	New Mexico	1
California	7	New York	19
Colorado	2	North Carolina	2
Connecticut	2	North Dakota	1
Delaware	1	Ohio	7
District of Columbia	1	Oklahoma	2
Florida	2	Oregon	1
Georgia	3	Pennsylvania	11
Idaho	1	Rhode Island	1
Illinois	9	South Carolina	2
Indiana	4	South Dakota	1
Iowa	3	Tennessee	3
Kansas	2	Texas	6
Kentucky	3	Utah	1
Louisiana	2	Vermont	1
Maine	1	Virginia	3
Maryland	2	Washington	2
Massachusetts	7	West Virginia	2
Michigan	5	Wisconsin	3
Minnesota	3	Wyoming	1
Mississippi	2	Alaska	1
Missouri	4	Hawaii	1
Montana	1	Isthmian Canal Zone	1
Nebraska	2	Philippine Islands	2
Nevada	1	Puerto Rico	1

The fifteen scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each.

The Scientific Assembly of the Association will open with the general meeting, to be held at 8 p. m., Tuesday, June 11. The sections will meet Wednesday, Thursday and Friday, June 12, 13 and 14, as follows:

CONVENING AT 9 A. M., THE SECTIONS ON

Surgery, General and Abdominal.	Nervous and Mental Diseases.
Ophthalmology.	Dermatology and Syphilology.
Pediatrics.	Gastro-Enterology and Proctology.
Pharmacology and Therapeutics.	Radiology.

CONVENING AT 2 P. M., THE SECTIONS ON

Practice of Medicine.	Preventive and Industrial
Obstetrics and Gynecology.	Medicine and Public Health.
Laryngology, Otology and Rhinology.	Urology.
Pathology and Physiology.	Orthopedic Surgery.
	Miscellaneous Topics: Session on Anesthesia.

The Registration Department will be open from 8:30 a. m. until 5:30 p. m., Monday, Tuesday, Wednesday and Thursday, June 10, 11, 12 and 13, and from 8:30 a. m. to 12 noon, Friday, June 14.

ROCK SLEYSER, President.

H. H. SHOULDERS, Speaker, House of Delegates.

OLIN WEST, Secretary.

MEMBERS OF THE HOUSE OF DELEGATES

A Preliminary Roster of the Legislative Body of the
American Medical Association

The list of members of the House of Delegates for the session is incomplete, as a number of the state associations are yet to hold their meetings at which delegates will be elected. The following is a list of the holdover members of the House of Delegates and of the newly elected members who have been reported to the Secretary in time to be included:

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ALABAMA A. A. Walker, Birmingham. J. N. Baker, Montgomery.	INDIANA George R. Dillinger, French Lick. H. G. Hamer, Indianapolis. Don F. Cameron, Fort Wayne. F. S. Crockett, La Fayette.
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Conn.; George Blumer, New Haven, Conn.;
Paul J. Hanzlik, San Francisco; Ludwig
Hektoen, Chicago; Urban Mac, New Orleans;
Eben J. Carey, Milwaukee; James P. Leake,
Washington, D. C.

BUREAU OF LEGAL MEDICINE AND LEGISLATION
—J. W. Holloway Jr., Acting Director,
Chicago.

BUREAU OF HEALTH EDUCATION—W. W. Bauer,
Director, Chicago.

BUREAU OF INVESTIGATION—Paul C. Barton,
Director, Chicago.

BUREAU OF MEDICAL ECONOMICS—R. G. Leland,
Director, Chicago.

CHEMICAL LABORATORY—Paul Nicholas Leech,
Director, Chicago.

LIBRARY—Marjorie Hutchins Moore, Librarian,
Chicago.

NEW YORK THE METROPOLIS—FEATURES OF THE CONVENTION CITY

Twenty-three years have passed since the American Medical Association held an annual session in New York City. The year was 1917 and the attendance was 5,147.

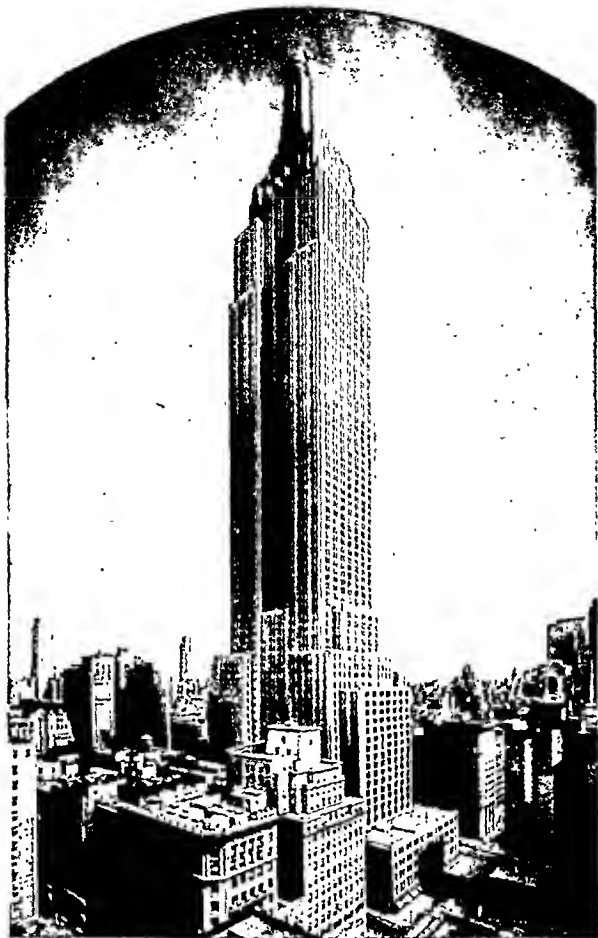
The great metropolis of 1917 has become still greater in 1940. The face of the city has changed. There have been significant movements of its population. Methods of transportation have been revolutionized. Today the traveler approaches from the

their original confines. Persons especially interested will find great markets devoted to all the foods of the world. The drug industry is chiefly in lower Manhattan. The retail shops are now both on Park and on Fifth Avenue and on all the little streets between Park and Fifth avenues as far as Sixtieth Street. Art and antique dealers are found on Fifty-Seventh and adjacent streets and on Madison and Lexington avenues. Many antique shops are on Eighth Street, while the dressmakers and milliners and tailors are on all the little streets leading off of Park and of Fifth.

THE PARKS OF NEW YORK

There are 117 city parks in the New York area, of which the most famous is, of course, Central Park, extending from Fifty-Ninth to One Hundred and Tenth Street; famous for historical and similar interest is the Battery Park, site of the old Battery; the Aquarium; the City Hall Park; Roger Morris Park, which was the site of the home of Aaron Burr; Audubon Park, and Poe Park, the site of the Edgar Allan Poe cottage.

The art museums are magnificent and the sculptural treasures of the city are beyond compare. Especially fascinating is the Museum of Modern Art, which is at 11 West Fifty-Third

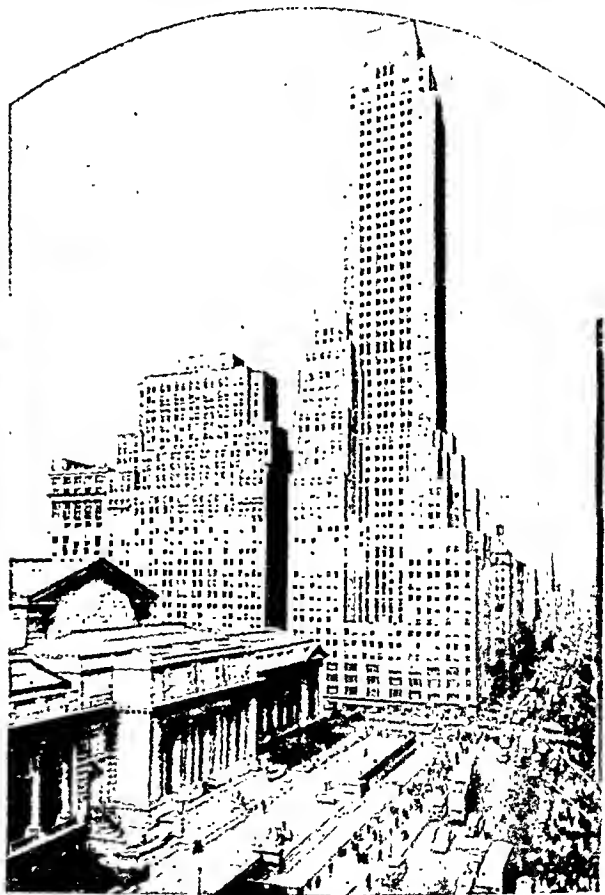


EMPIRE STATE BUILDING, TALLEST BUILDING IN THE WORLD, 1,250 FEET ABOVE THE STREET LEVEL

land and from the sea, from the river and from the air, and through vast tunnels, many miles in length, which burrow from far away into the center of the city.

New York is not only the largest city in the United States but the largest city in the world, with a population well over 7,000,000 people. Its individual population in persons of various races and nationalities is in many instances greater by far than the largest cities of the countries from which the ancestors of these people came. Thus it becomes possible in this great city to find areas in which the people, the trade, the restaurants and the theaters appear as if one had been suddenly transported to a foreign country.

For literature and for the drama, for music and for journalism, for art and for commerce, New York is supreme as a center in this country. The magnificent wholesale and retail shops are in themselves a perennial exhibit of the most that modern industry has to offer. Once Fifth Avenue was known as the home of the great shops and Wall Street as the center of commerce. Today Wall Street is still a name with which to conjure, but the shops and trade have branched out far beyond



UPPER FIFTH AVENUE AT 42d STREET

Street. For music New York offers not only the Metropolitan Opera House but the famous Steinway, Chickering and Carnegie halls and more recently the Town Hall series of concerts. The scientific collections and the learned societies include the famed collection of the American Museum of Natural History, the Aquarium and Zoological Park, the latter under the control of the New York Zoological Society. There are several great

botanic gardens and special collections also developed by the New York Historical Society.

The theaters of New York and the plays available constitute, of course, the national theater of America. Among the largest are the Roxy and the Capitol, each seating 5,000 or more, as well as the great theaters of Radio City. The columnists who feature New York day by day in American newspapers have made the clubs and night clubs of New York as widely known in every town, village and hamlet as they are to the inhabitants of New York City.

The universities and colleges of New York are likewise known throughout the world. Fordham University, Columbia, the College of the City of New York, Hunter College, Manhattan College and many a technical institute are places of interest to visitors who seek knowledge of new methods of education.

Conscious of the fact that New York is the mecca of visitors from all over the world, its fabulous towers and buildings make special tours easily available. Thus one may visit the Empire State Building, the Rockefeller Center Group containing the broadcasting studios of the great National Broadcasting chain and the Columbia Broadcasting system.

For amusement and entertainment New York offers a number of major league baseball teams, innumerable night clubs, taverns and restaurants, a tremendous number of hotels with special facilities and nationally known orchestras, and more than 100 private and public golf courses.

Transportation about the city is had in any of the thousands of taxicabs maintained by various companies, innumerable busses, street cars, elevated roads and the subways.

In 1917 the Hotel Astor was the headquarters for the session, and the new Waldorf-Astoria had not yet been built. Then the

occupied one floor of the Hotel Astor and included materials from 100 firms. The Exhibit this year includes the shows of approximately 250 firms, and it will occupy more than three floors of the Grand Central Palace. Now there are new sections, new general meetings, motion picture development, and many other features of tremendous importance.

At the New York session of 1917 the nation was at war. The session of 1940 faces a world again at war but our nation enjoy-



BATTERY PARK SHOWING THE AQUARIUM. IN THE VERY DISTANT BACKGROUND (NOT DISCERNIBLE IN THIS PICTURE) IS BEDLOE'S ISLAND, ON WHICH IS THE STATUE OF LIBERTY

ing the progress and the fruits of peace. Dr. Arthur Dean Bevan was elected president at the 1917 session—a recognition of his long service to the Council on Medical Education. The Fellows of the American Medical Association then numbered slightly more than 43,000, now almost 70,000. The members of the American Medical Association then included 81,000 and are now more than 116,000.

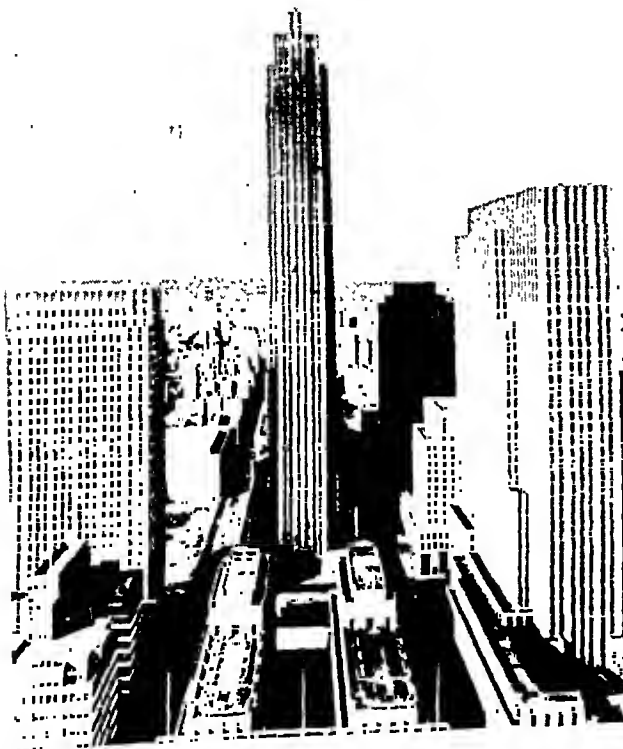
Now, almost twenty-five years have passed and the Association assembles again in New York City. Our world has changed, but there are nations still at war and a war threatens our own country. The problem of social insurance has resolved itself into the development of a health program for the nation. The House of Delegates at the 1940 session will find problems of the same serious concern as those which troubled the House of Delegates in 1917.

THE HOSPITALS AND MEDICAL FACILITIES OF NEW YORK

The Publick Workhouse and House of Correction were built by the city in 1736 on the site where the present City Hall stands. One room measuring 25 by 23 feet with six beds was set apart as a hospital ward. The first voluntary hospital was incorporated in 1771 by the Society of the Hospital of the City of New York in America. In 1810 the name was changed to the Society of The New York Hospital. Although many institutions were built before 1860, the hospital boom did not start till the decade following the Civil War. However, prior to this period a change in public attitude toward hospitals became discernible. Hospitals were no longer regarded as institutions for the poor exclusively; they began to be patronized to an increasing extent by patients who were able to pay for services. St. Vincent's Hospital, the first denominational hospital in the city, has also the distinction of being the first to provide comfortable private rooms for pay patients.

By 1848 Bellevue Hospital had become an important teaching institution, and in 1861 a medical school was opened in conjunction with this hospital. The first school of medicine in New York City goes back to 1767, when such a school was established in connection with King's College, thanks to the efforts of Dr. Samuel Bard and five other prominent physicians of the period.

At present within the boundaries of New York City proper there are 134 hospitals exclusive of proprietary hospitals, which number about seventy-five. Of the 134 hospitals 103 are under voluntary auspices and twenty-four are maintained by the city, three by the federal government and four by the state. The federal hospitals include those under the U. S. Public Health



THE ROCKEFELLER CENTER-RADIO CITY DEVELOPMENT AS SEEN FROM FIFTH AVENUE

Scientific Exhibit was just beginning to be developed and was housed in the summer roof garden of the Hotel Astor. There were about thirty exhibits. Now the Scientific and Technical Exhibits will be housed in the Grand Central Palace, and there are more than 200 scientific exhibits alone. In 1917 the meeting was widely spread through hotels in various areas in the city; now through the building of many new hotels it has become possible to concentrate the meeting in a central hotel area of new and modernized buildings. The Technical Exhibit of 1917

Service and the Veterans' Hospital in the Bronx. The four state hospitals are for the care of the mentally sick.

The preponderating majority of the voluntary hospitals are of a general character. Of the special hospitals seven are for eye, ear, nose and throat conditions, nine for women and children and five for orthopedic patients. All these special hospitals are under the control of voluntary boards of trustees. The four hospitals for communicable diseases are maintained by the city, as are also four hospitals for tuberculosis. The other four tuberculosis hospitals are under voluntary auspices.

The total number of hospital beds in New York City is over 49,000. Of these 39.4 per cent are in governmental hospitals, 52.1 per cent in voluntary hospitals and 9.5 per cent proprietary institutions. Nearly a fourth of all general hospital beds are in four institutions of more than 1,000 beds each, and only 11.7 per cent of the beds are in the seventy general hospitals of less than 100 beds. With few exceptions the larger hospitals are government institutions and the very small hospitals pertain to the proprietary group. Exclusive of beds for tuberculosis, mental disease and acute communicable disease, the average number of hospital beds for 1,000 of the population is 4.5; that of the borough of Manhattan is double the ratio for the city as a whole.

The annual rate of occupancy of the hospitals as a whole is 76 per cent. The municipal and state hospitals show a much larger utilization percentage; they are overcrowded almost all

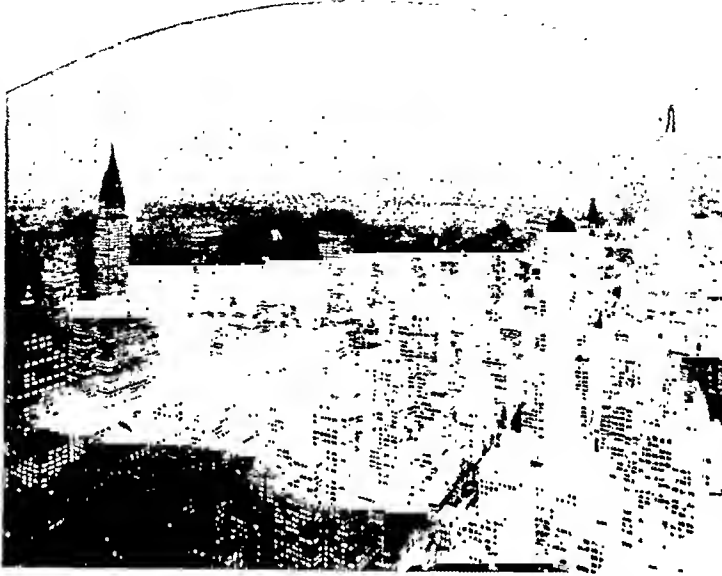
The annual maintenance bill of the hospitals of New York City comes to about \$70,000,000, half of which goes for voluntary hospitals and about \$26,000,000 for municipal hospitals. The average daily per capita cost in voluntary general hospitals is \$6.45, while the daily operating cost in the voluntary special hospitals varies considerably with the type of condition treated. The maternity and children's hospitals have a daily average per

capita cost of \$6.42, the orthopedic \$6.25 and the eye, ear, nose and throat \$6.77. The cost in the municipal general hospitals averages \$3.38 per diem. All these costs do not include allowances for depreciation.

The outpatient service in New York City is extensive and unrelated to the size or density of neighboring populations. According to the last survey made there were 268 outpatient services in New York City, ninety-nine of which constituted outpatient departments of hospitals and the remainder were independent dispensaries. The department of health operates twenty-nine of these units. In the hospital outpatient depart-

ments alone more than 1,600,000 patients are seen annually. These patients make over 7,000,000 visits. Since the depression, the dispensary service has increased considerably.

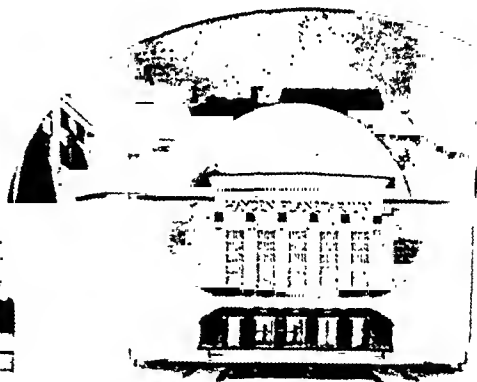
The hospital ambulance service of this city is among the first in point of time, as well as in the extent of its work. Ambulances are operated by the voluntary and municipal hospitals, and all are under supervision of the municipal department of hospitals. The city pays to the voluntary hospitals a stipulated



NIGHT IN GOTHAM. LOOKING SOUTHEAST FROM THE ROCKEFELLER CENTER. THE CHRYSLER BUILDING IS AT THE LEFT AND THE EMPIRE STATE BUILDING AT THE RIGHT



THE METROPOLITAN MUSEUM OF ART,
FIFTH AVENUE AT 82nd STREET



NIGHT VIEW OF THE HAYDEN PLANETARIUM.
81st STREET AT CENTRAL PARK WEST

the year. The total number of patients treated annually in New York is over 700,000—about 400,000 in voluntary hospitals, 250,000 in municipal hospitals and 60,000 in proprietary hospitals. The total number of days spent by patients in hospitals exceeds 15,000,000 annually. The average number of days of care per patient in the voluntary hospitals in New York City is 12.2 days as against 11.3 days in the United States as a whole; in the municipal hospitals it is 17.8 days as against 15.5 days in municipal hospitals of the country as a whole.

sum per ambulance annually. The ambulance service in New York City has been and still is grossly abused by the populace. About 350,000 ambulance calls are made annually, more than half of which are for persons with minor ailments not requiring removal to a hospital.

As an integral component of the hospital domain there are in operation sixty-three units of service for convalescent care,

Some New York Medical Schools

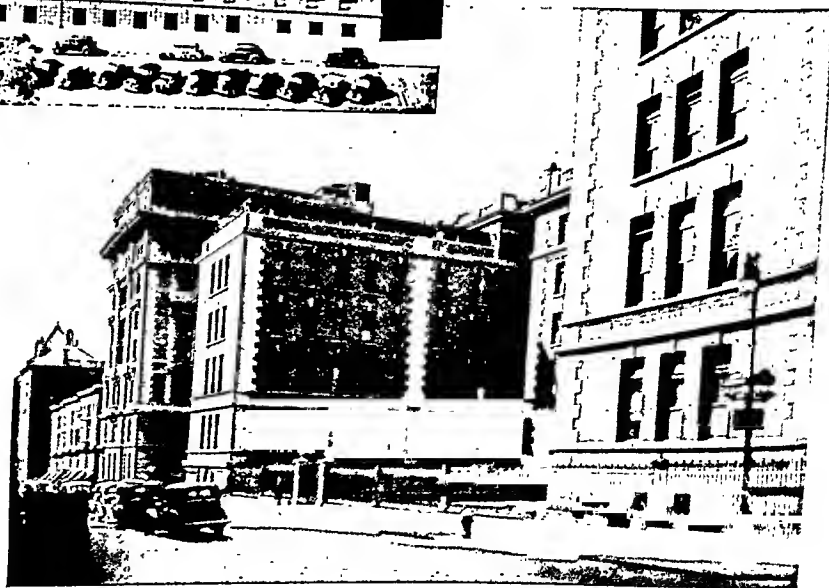


ABOVE: NEW YORK POST-GRADUATE
MEDICAL SCHOOL AND HOSPITAL,
303 EAST 20th STREET



LEFT: NEW YORK MEDICAL COL-
LEGE, FLOWER AND FIFTH AVENUE
HOSPITALS, FIFTH AVENUE AT 105th
STREET

RIGHT: LONG ISLAND COLLEGE OF
MEDICINE, 340 HENRY STREET,
BROOKLYN



THE NEW YORK SESSION

VOLUME 114
NUMBER 18

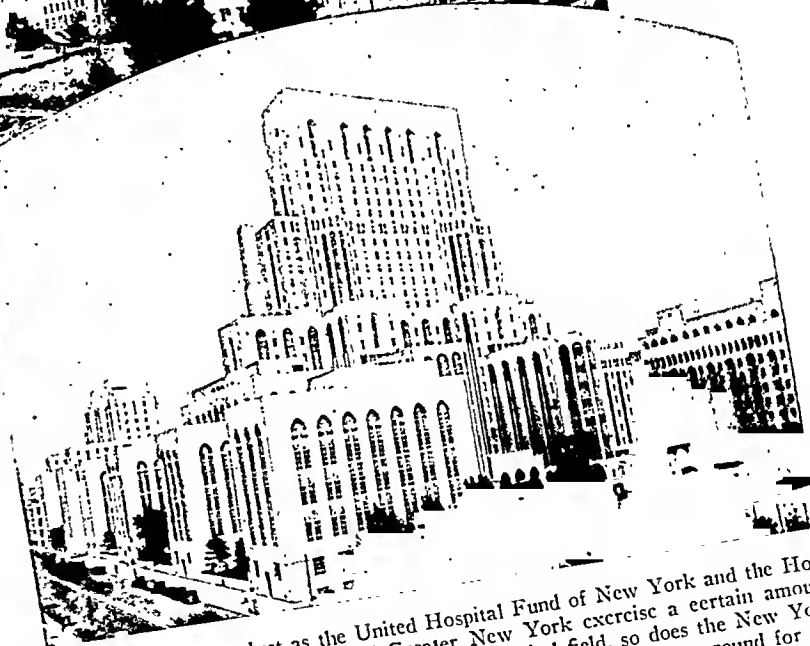
Almost all the institutions for convalescent care serving New York are outside the city limits. The available beds in these institutions number about 4,500; this comprises one half of the available charitable convalescent home accommodations in the United States. The ratio of institutional convalescent beds to the population in New York City is 59.5 beds for every hundred thousand inhabitants, while in the country as a whole there are 7.1 beds per hundred thousand of population. In spite of these comparatively abundant facilities only 5.3 per cent of the New York hospital ward patients are admitted to convalescent homes. The average cost of maintenance of a patient in a convalescent home is \$2.50 a day.

In round figures there are 16,000 registered physicians in New York City. According to a sampling test made several years ago it would appear that as many as 94.8 per cent of all

There are five medical schools in the city; three of them are the medical departments respectively of Columbia University, Cornell University and New York University. The two other medical schools are under independent auspices: the Long Island College of Medicine, located at 350 Henry Street, Brooklyn, and the New York Medical College at One Hundred and Sixth Street and Fifth Avenue. Five general hospitals are affiliated with the medical schools: Presbyterian Hospital with the College of Physicians and Surgeons of Columbia University, the New York Hospital with Cornell University Medical College, Bellevue a threefold affiliation with Columbia, Cornell and the College of Medicine of New York University, and Flower and Fifth Avenue Hospital with the New York Medical College. The Long Island College Hospital is associated with the Long Island College of Medicine.



ABOVE: COLUMBIA-PRESBYTERIAN HOSPITAL MEDICAL CENTER, 622 WEST 168th STREET



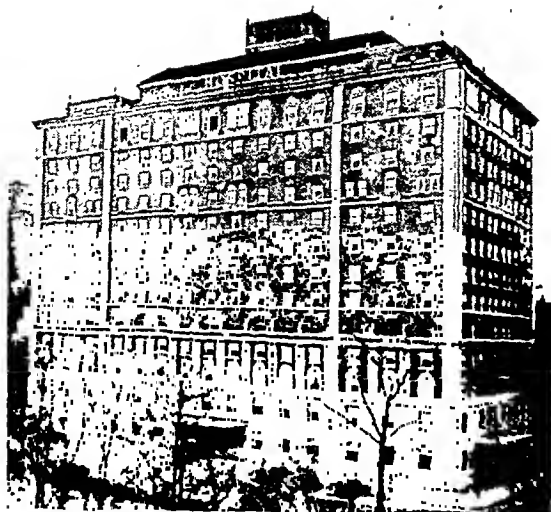
RIGHT: CORNELL MEDICAL CENTER, 68th TO 71st STREET

physicians in active practice have some affiliation with a hospital or dispensary service. Over 70 per cent of the physicians had an affiliation with a hospital inpatient service; 10.5 per cent of the physicians had only courtesy staff privileges and 13.6 per cent with an outpatient service of a hospital or with an independent dispensary. If these figures, obtained in the course of the recent hospital survey, are correct, they indicate a considerable improvement in the situation during the last decade. With the exception of eleven, all the voluntary hospitals in New York City having private and semiprivate services had courtesy staffs on July 1, 1935.

Forty-three hospitals are affiliated with medical schools. As a result of the cooperation which has been established through the Academy of Medicine between the pathologists and hospital administrators on the one hand, and the Metropolitan Funeral Directors Association on the other, an improvement in relations has been secured which has resulted in more than 30 per cent of consent for necropsies.

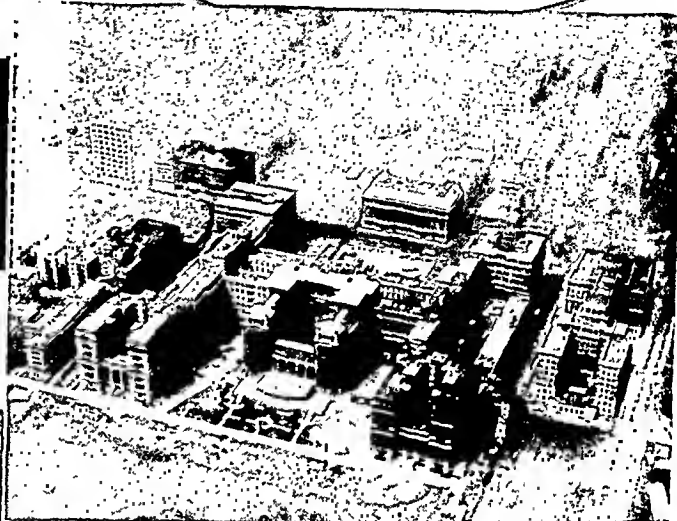
Just as the United Hospital Fund of New York and the Hospital Council of Greater New York exercise a certain amount of coordination in the vast hospital field, so does the New York Academy of Medicine afford a common meeting ground for the research and educational work in the medical realm. The Academy of Medicine is located on Fifth Avenue and One Hundred and Third Street, and its library is open daily to the public from 9 a. m. to 5 p. m. All the meetings of the academy and its eleven sections are open to the profession generally.

MEDICAL SERVICE AT THE FAIR
Medicine plays a vital part in insuring the welfare of the millions of visitors who will crowd the fair grounds during the season. Under the supervision of Dr. J. Peter Hoguet, medical director of the fair, a comprehensive medical program has been devised to treat every type of medical emergency that may arise at the fair. The medical facilities are the result of several years of careful planning, so that visitors in need of medical attention



THE DOCTORS HOSPITAL,
170 EAST END AVENUE

Some New York Hospitals



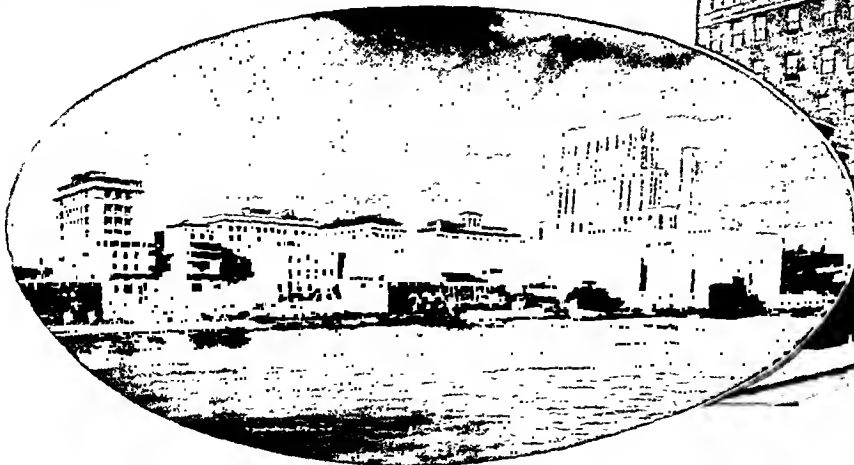
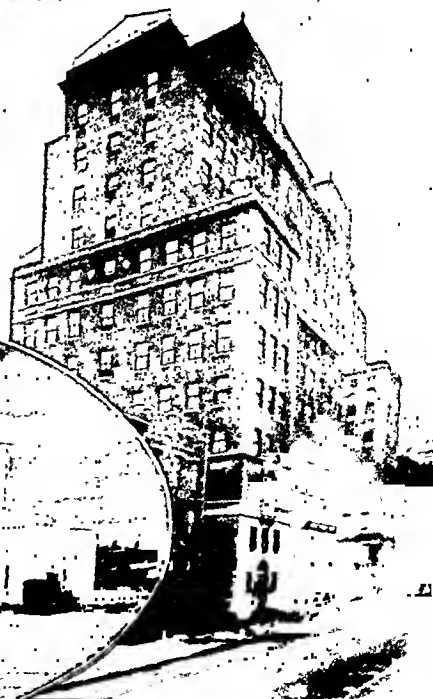
ABOVE: NEW YORK UNIVERSITY AND
BELLEVUE HOSPITAL, 415 EAST 26th
STREET



BELOW: FRENCH HOSPITAL, 330 WEST
30th STREET



ABOVE: MOUNT SINAI HOSPITAL, 1 EAST 100th STREET. BELOW:
THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH, NEW YORK
HOSPITAL AND CORNELL MEDICAL CENTER, 525 EAST 68th STREET



on the site may be assured of receiving the highest ethical standard of treatment.

Medical emergencies at the New York World's Fair are met by four first aid stations. Each provides a waiting room surgery, nurses' and doctors' rooms, and wards for men and women. Serious cases are temporarily hospitalized and transfer is made later to outside hospitals by ambulance. The Fair Corporation operates five air conditioned ambulances.

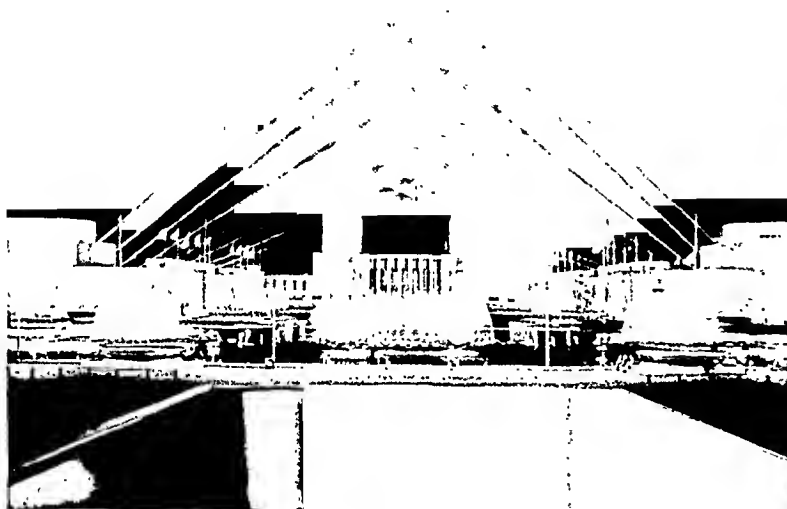
HEALTH SERVICE AT THE FAIR

The New York City Department of Health has established in cooperation with the Fair Corporation a branch of its activities on the fair grounds under the direction of Dr. John G. Grimley, special deputy commissioner of health. The work of this department is preventive in character. It deals with the problems of water supplies, plumbing, foods, milk supplies, dis-

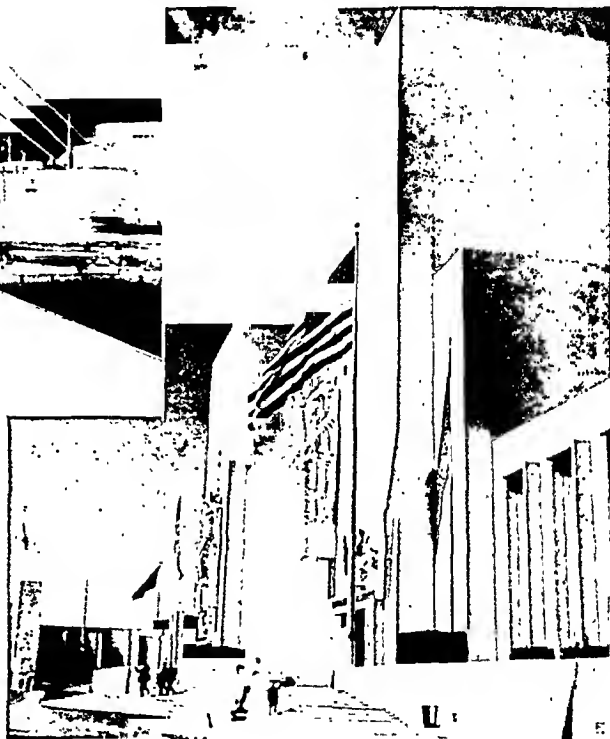
Under the terms of these special regulations all glasses, cutlery and crockery used in food purveyance anywhere in the fair are required to be properly washed in a solution of soap, soda or other suitable cleansing powder and treated before each use with a final rinse of hot water at 175 F. for a period of one minute, the temperature to be registered by a thermometer. These installations must be equipped with a locking and timing device to guarantee the time required of one minute.

Another instance of the rigid precautions exercised by the health department of the fair is to be found in its eradication of all probable breeding places of mosquitoes and other insects on the fair site. An interesting feature of this activity is a completely equipped laboratory where all entomologic specimens caught on the fair grounds in specially constructed traps are examined and classified so that the fair has a complete check on any potential insect menace to the health of its visitors.

Special machinery has been set up for the disposal of garbage and the thorough cleansing and disinfecting of all garbage containers.



ABOVE: COURT OF PEACE,
NEW YORK WORLD'S FAIR



RIGHT: U. S. GOVERNMENT BUILD-
ING, NEW YORK WORLD'S FAIR

posal of sewage and garbage, communicable diseases, industrial hazards, smoke, obnoxious gases and vapors, noises, flies, mosquitoes and vermin.

The efficacy of this department has been implemented by special sanitary regulations passed by the board of estimate of New York. These regulations have been passed to strengthen the sanitary code of the city of New York because of the specific problems related to safeguarding the health of so vast an influx of people. A staff of thirty-five health inspectors thoroughly trained in food and sanitary inspection daily inspect the fair's 600 eating and drinking establishments to see that the rigid rules of sanitation set up at the fair for the protection of its visitors are kept to the letter.

All food handlers are examined once a month and a card is issued which must be produced, on request, by the health inspectors.

Lavatory facilities are provided in all kitchens for the use of kitchen help only, with the proper requisites of soap, hot and cold running water and individual towels.

The completely coordinated program assures each visitor to the New York World's Fair of every protection to his health and welfare that human efficiency and medical science can provide.

MEDICINE AND PUBLIC HEALTH AT THE WORLD'S FAIR

The New York World's Fair joins with the city in playing host to the visiting members of the American Medical Association, and two special days have been arranged for June 14 and 15. Special admission arrangements have been made, details of which will be available at the convention headquarters. The House of Delegates will be entertained at the fair on June 10.

With an endless variety of places to go within this city that is called the World's Fair, it still is safe to predict that visiting doctors will direct their footsteps most frequently to the building which is devoted to the subject nearest their interests—Medicine. The Medicine and Public Health exhibits presented by the American Museum of Health and its collaborators are housed in a building symbolically located at the heart

of the fair, on Constitution Mall and the Theme Plaza, where stand the impressive Trylon and Perisphere.

The exterior decorations of the building provide an index of the character of its contents. Dominant among these is the depiction of Modern Medicine, a 34 foot square mural, by Hildreth Meiere, showing a physician pointing out to ailing

humanity all the resources of modern medical science. In the interior two magnificent murals, each 71 feet long, provide an integral chapter in the story of man and his health, to which this building is devoted. These murals, the work of WPA artists, portray the history of medicine and the effect of medical science on civilization. In the development of these murals

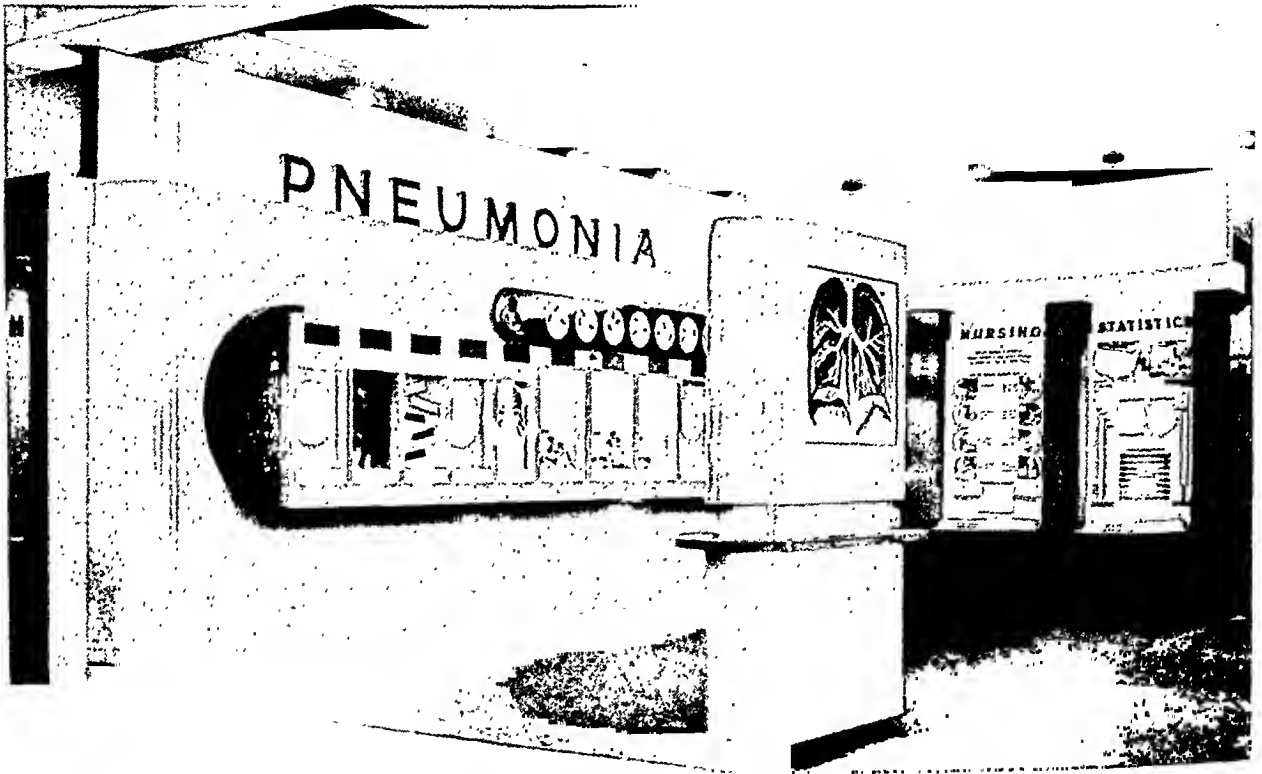


EXHIBIT ON PNEUMONIA IN HALL OF MEDICINE, NEW YORK WORLD'S FAIR, SPONSORED BY LEDERLE LABORATORIES

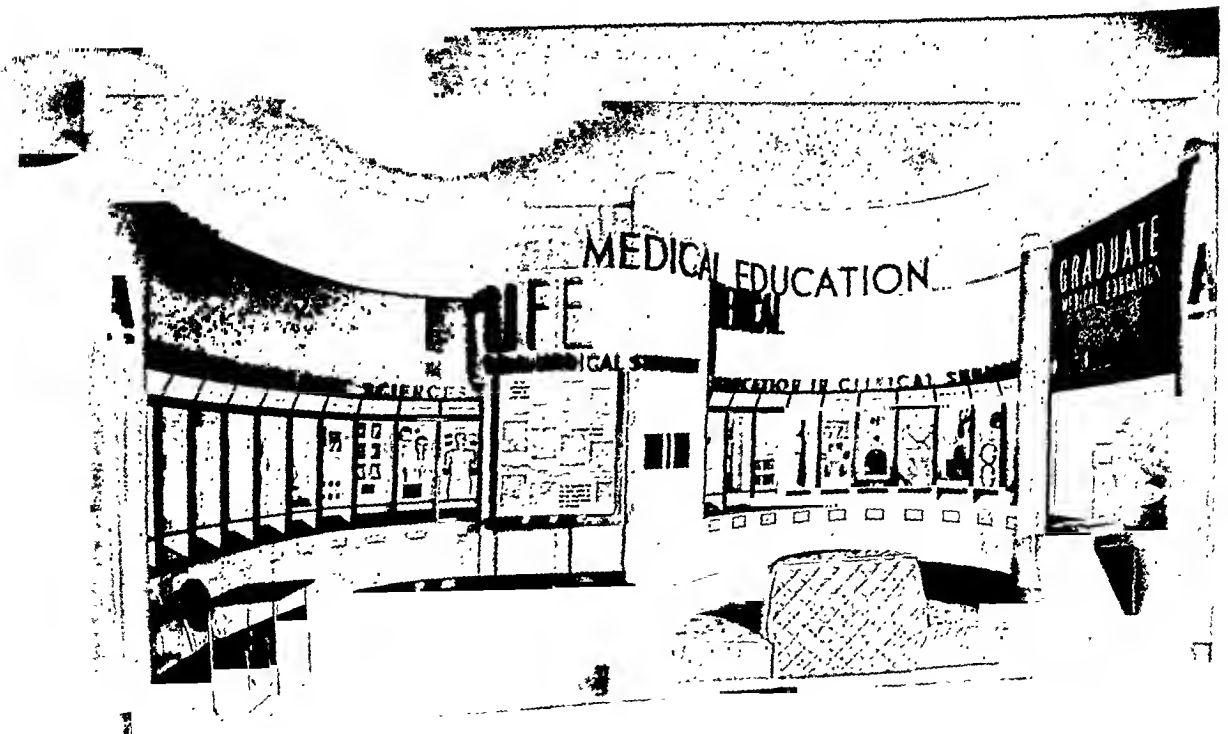


EXHIBIT ON MEDICAL EDUCATION, SPONSORED BY THE AMERICAN MEDICAL ASSOCIATION, AT NEW YORK WORLD'S FAIR

the artists had the benefit of the guidance of Dr. Arthur W. Booth, of the Board of Trustees of the American Medical Association.

One of the largest and most beautiful structures at the fair, and one of the most popular buildings during the 1939 fair season, the Medicine and Public Health Building contains some of the most dramatic exhibits in the exposition. Although designed primarily to bring accurate medical and public health knowledge to the great mass of the people, the exhibits have much to offer scientists and professional people who as individuals are vested with the responsibility of promoting health and conserving life. The physician, surgeon, research man and educator will be interested in the exciting technic employed to dramatize facts well known to them. Supplementing the exhibits are motion picture films of popular appeal relating to medicine and public health, which are presented daily in the auditorium in this building. The auditorium is available also to scientific, medical and educational societies for meetings and conventions.

The most popular of the fair's focal exhibits is the Hall of Man, which dominates the medical building. Its theme is expressed on a prominent entablature by an excerpt from the writings of St. Augustine: "Man wonders over the restless seas, the flowing water, the sight of the sky and forgets that of all wonders man himself is the most wonderful." Pictorially this quotation is presented on a huge curved wall in the dramatic exhibit the "Pulsation of Life." The sound of a persistent, measured pulsation permeates the hall. Mysterious at first, it is discovered emanating as the heart beat of the imposing 22 foot figure of a man as he emerges from the vast cosmic panorama which covers one end of the long hall. Here too, bathed in a white light, stands the life size figure of the Transparent Man. By lights synchronized with a lecture, the Transparent Man shows the location of the chief organs of the body and describes their functions.

Surrounding this theme exhibit are displayed materials from the famous Oberlaender Trust collection. In novel and exciting fashion the exhibits are grouped for easy comprehension into sections on Walking and Working, Eating and Drinking, the Blood, Air, Sun and Water, the Five Senses and the Marvel of Heredity. A purpose of the Hall of Man is to satisfy man's natural curiosity about himself. Here he sees how he functions in his various parts, what a perfectly integrated organism he is, and how precious is his heritage of a healthy body.

Many of the exhibits are operated by the visitor. The theory behind this new technic in popular health education is that what is self taught is best learned. Among these are the spirometers, enabling visitors to see how much air is expelled from the lungs with every exhalation. Ergographs measure muscular strength and fatigue of the hands. A "Pain Man" indicates, on the pressing of buttons, where pain most frequently occurs, and charts indicate the probable cause of pain in that region and the organ from which it originates.

Enlarged models of various organs show their structure and their functioning. New exhibits in this hall will include a section on Glands, a new and fascinating subject to scientists and lay person alike, the Blood Corpuscle and the Action of the Heart. A great favorite with the public are the exhibits on the Marvel of Heredity combined with the transparent specimens of human embryos, which tell the story of the beginnings of human life and its development. A moving talking skeleton lectures on the human framework and the more than 200 bones which comprise it.

A special section in this hall deals with the vital statistics of the United States population, its past, present and future.

A large meter records the change in population as babies are born and people die.

The Hall of Man was sponsored and organized by the American Museum of Health, Inc., and made possible through the generous assistance of the Carnegie Corporation of New York, the Oberlaender Trust and nine prominent insurance companies: Metropolitan Life, New York Life, the Traveler's, John Hancock Mutual Life, Aetna Life, the Provident Mutual Life, Connecticut General Life, the Connecticut Mutual Life and the Guardian Life of America. It was designed by Ian Woodner in consultation with Homer N. Calver, secretary of the museum and director of health exhibits at the fair, and Dr. Bruno Gebhard, technical consultant. Mr. George McAneny, president of the museum, and Dr. Louis I. Dublin, chairman of the board, were active in the organizational work which provided the financing for this impressive exhibit.

The museum is also sponsoring the Focal Exhibit in the Hall of Medical Science. This is "Mac," the Mechanical Man, a four times life size model of the human torso shown for the first time in this country at the fair. His debut under the name of "Godfrey" was made at the Glasgow exposition in 1938,

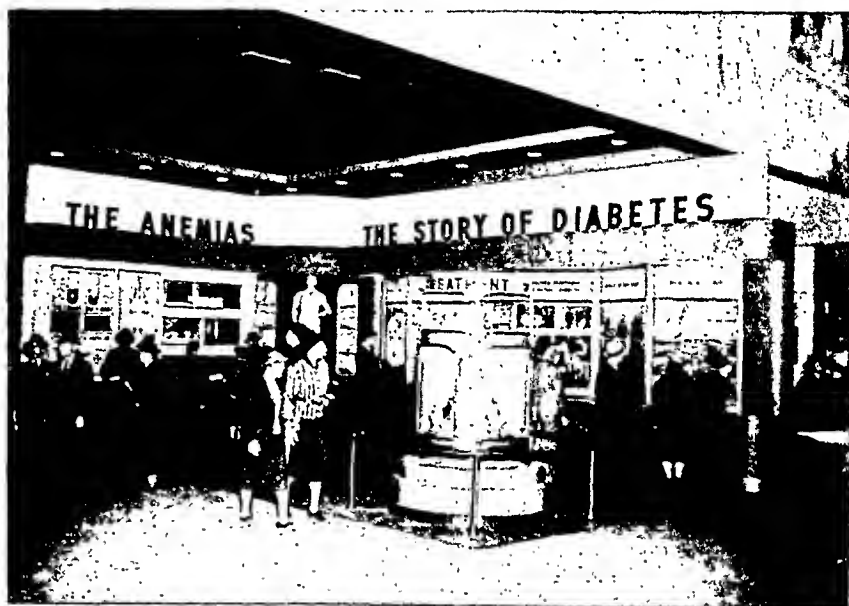


EXHIBIT ON BLOOD DISEASES AND DIABETES IN THE HALL OF MEDICINE, NEW YORK WORLD'S FAIR, SPONSORED BY ELI LILLY AND COMPANY

where he caused a sensation in the British pavilion. Lent to the museum by the British Ministry of Health, "Mac" shows in mechanical terms the working of human internal organs. The eye is represented as a camera, the brain an instrumental panel, memory a library, the heart a pump, the glands as test tubes. A lecture is synchronized with the mechanical movements of man's organs, explaining their functions.

Around this focal exhibit the newest chapters of medical science and public health methods are presented under the sponsorship of prominent medical, dental and public health organizations, philanthropic foundations and highly ethical pharmaceutical houses. All the exhibits were created under the supervision of scientists to assure their accuracy.

In the center of the hall is the exhibit on Medical Education sponsored by the American Medical Association. It is designed to demonstrate to the public how thoroughly and completely trained in a wide variety of fields are the doctors of this country. A series of dioramas, transparencies and models illustrate the basic sciences, in which every medical student must have a thorough foundation. Each section has an element of visitor participation—he either makes something work or he illuminates various transparencies when a button is pushed. A large diorama presents eight years in the life of a medical student, emphasizing the fact that there are no short cuts to knowledge

in this field. Scenes of premedical training show the grounding in the sciences which students must have before entering medical school. Another section deals with the period of internship and finally the emergence of the full-fledged practicing physician. A companion exhibit deals with subjects in clinical medicine, and the extensive training of the doctor who becomes a specialist.

Lederle Laboratories, Inc., presents two exhibits on subjects in which practically every individual has a special interest. In the exhibit on Allergy three stories are told: Tommy Todd's

the various organs affected when the body is unable to utilize sugar and starch. Transparencies present the symptoms, diagnosis, causes and treatments of diabetes. Another exhibit sponsored by this company deals with anemias and other blood disorders. Two giant test tubes offer a comparison between normal and anemic blood. New methods of therapy used in the cure of blood disease are a feature of the exhibit.

W. A. Baum Company, Inc., presents in the Hall of Man an exhibit on Blood Pressure. A device 19 feet tall is a representa-



MURAL IN THE MEDICINE AND PUBLIC HEALTH BUILDING, NEW YORK WORLD'S FAIR, REPRESENTING MEDICINE IN PRIMITIVE TIMES

Autumn Colds, Baby Bing's Eczema and Mrs. Tucker's Wheezes. The doctor's detective work determines that the characters are not suffering from colds, eczema and wheezes but rather from an allergic sensitivity to certain foods, plants and irritants. How the physician finds the cause and controls the symptoms is graphically shown. A separate panel gives sixteen photographs of various scenes, each concealing a common allergic cause of hay fever, eczema, and so on, and the culprit excitant is revealed in color by pressing an electric button after the visitor has made his own guess.

Sulfapyridine, the new miracle worker, will be the feature in Lederle's exhibit on Pneumonia. The use of this new development of medical science has only this past winter been widely adopted, and extensive changes have been made in the Pneumonia exhibit to introduce a demonstration of its use. Dioramas present the story of pneumonia from the early "cold" stages to its cure by specific treatment.

The story of modern Anesthesia is presented in the exhibit sponsored by the Winthrop Chemical Company, Inc. The

tion of the human blood pressure and its fluctuations. At its base a life size figure shows the blood circulatory system, with a heart flashing seventy times a minute demonstrating that the heart is the dynamo originating blood pressure. The importance of blood pressure as an indication of the state of health is brought out in a series of statements on the need for periodic health examinations.

Healthy children are not only born, they are "made" to a certain extent according to the exhibit on Child Health, Normal Growth and Development sponsored by Mead Johnson & Company. The prevention of diseases is an important feature of the exhibit, while a special section is devoted to the relationship between learning and health, demonstrating how cooperation between school and parents helps to assure normal development during school years.

The Medical Society of the County of Queens, Inc., a unit of the American Medical Association, is sponsoring what is described as "A Survey of the Need for Medical Care of the Apparently Well as Revealed by an X-Ray of the Chest."



MURAL IN THE MEDICINE AND PUBLIC HEALTH BUILDING, NEW YORK WORLD'S FAIR, EPITOMIZING THE WORK OF VESALIUS, PARE, HARVEY, LAENNEC, THE DISCOVERY OF ANESTHESIA, ROENTGEN AND PASTEUR

method employed is a reproduction of an up-to-date operating room in action. By the use of life size mechanized figures the application and effects of inhalation anesthesia are dramatically shown and other units demonstrate different methods and features of anesthesia.

A great step forward in life conservation was taken with the discovery of insulin, and the Eli Lilly & Company exhibit on Diabetes shows that insulin, the internal secretion of the pancreas, is the one substance which correlates the functions of

Roentgenograms are taken in a few seconds, and a report by competent physicians is sent to the family physician of the visitor.

The three recognized methods of the treatment of cancer, surgery, x-rays and radium, are dramatically presented in the exhibit on Cancer sponsored by the New York City Cancer Committee of the American Society for the Control of Cancer. Dioramas show stages of the development of these treatments, including replicas of laboratories in which the epoch making

discoveries of Roentgen and the Curies were made. On an illuminated figure the growth of a tumor of the breast and its spread are indicated. Some of the means for carrying on research in the cause and cure of cancer are also portrayed.

First Year of Life is one of the most popular exhibits located in the Hall of Man. Sponsored by the Maternity Center Association, Gerber's Baby Foods and Karo, the exhibit consists of a series of detailed life size models showing the life of a baby from the time of conception until he takes his first breath.

Viruses and Virus Diseases is the third of the Rockefeller Foundation exhibits and one which ranked high in interest with professional visitors. The latest results of medical research in this field are presented as well as the means used by science to detect and study these midget bacteria which are believed responsible for such well known diseases as infantile paralysis, measles, rabies, scarlet fever and whooping cough.

An exposé of the incredible story of medical superstitions in America is the amusing yet important exhibit sponsored by the



MURAL IN THE MEDICINE AND PUBLIC HEALTH BUILDING, NEW YORK WORLD'S FAIR, INDICATING THAT ADVANCES IN MEDICAL SCIENCE BRING PARALLEL ADVANCES IN BROAD SOCIAL AIMS

Photographs demonstrate how a modern prospective mother and father get ready for the new baby and how they care for it during its first three months after birth. A staff member from the association and pamphlets on maternity supplement the information given in the exhibit.

Physicians as well as the public would like to know the answer to the question How can you keep warm in winter, cool in summer? The John B. Pierce Foundation exhibit on Housing for Health provides answers to this and many other questions, as it presents a scientific approach to healthful living in the home.

The Rockefeller Foundation and its International Health Division are responsible for three exhibits, two of them new features in the Hall of Medical Science this year. Man Spreads

Bayer Company. A Maze of Superstitions in the Hall of Man enjoyed among the highest number of visitors of any of the exhibits in the building. Consisting of a labyrinth of twists and turns, the exhibit brings to light many popular beliefs of the day which are as fantastic as any practiced during the Dark Ages.

Dominating the exhibit of the Shadow on the Land, which Parke, Davis & Company sponsors, is a giant microscope under the lens of which may be seen the insidious and minute organism which causes syphilis—*Spirochæta pallida*. Talking dioramas present a physician and his patient, who thoroughly discuss the nature of the disease and its treatment. The prevalence of syphilis is graphically and unmistakably portrayed.



MURAL IN THE MEDICINE AND PUBLIC HEALTH BUILDING, NEW YORK WORLD'S FAIR, EPITOMIZING THE HOPES OF MEDICINE FOR THE FUTURE

Disease is a popular introduction to the science of infectious diseases. The central feature shows how man himself is the source of many infections and how he spreads diseases as contagious as tuberculosis, influenza, typhoid and venereal diseases.

The Story of Diphtheria demonstrates the main principles of immunity. It shows how medical science has learned to help the body equipped by nature to defend itself against invading germs in its fight against infection and dramatizes the successful control of such murderous diseases as diphtheria by means of preventive immunization.

What the public should know about the spread and control of tuberculosis is simply and forcibly told in the exhibit sponsored by the National Tuberculosis Association and the Brooklyn, New York and Queensboro Tuberculosis and Health Associations. Trained assistants answer questions; a movie supplements panels and transparencies which show the diagnosis, the transmission, the effect, the spread and the treatment of tuberculosis.

Contributions of veterinary science to human medicine are illustrated in the exhibit sponsored by the American Veterinary

Medical Association and Allied Interests. Various types of veterinary service are shown—the relation of milk and meat inspection to human health, and the usefulness of livestock to mankind. Units deal with such subjects as hog cholera, equine sleeping sickness and the care of small animals. A section on diet proves a popular feature.

The American Dental Association sponsors an exhibit on Your Dental Health, featuring the necessity of proper care and treatment of the teeth and emphasizing the importance of early attention to children's teeth. Examples of orthodonture is a new feature in the exhibit, while ways and means of preventing decay and pyorrhea provide definite preventive information. A special section illustrates the intensive training which is required of the modern dentist.

related health problems. The exhibit is part of a study with a twofold purpose (1) to determine the present knowledge of and attitudes toward the so-called venereal diseases and (2) to provide fundamental information on which to base a continuing program of individual and community education in social hygiene.

Infantile Paralysis provides a subject of national interest, and the exhibit sponsored by the National Foundation for Infantile Paralysis brings to the Hall of Medical Science the new developments in the fight to stamp out this scourge.

At the time of going to press, several other new exhibits in this hall are in preparation. Announcements on them will be made at a later date, and the seven and a half million visitors who came to the Medicine and Public Health Building last



THE DOCTORS ORCHESTRA, NEW YORK, FOUNDED IN 1938. CONDUCTOR, IGNATZ WAGHALTER

How the health department protects the family is the subject of an exhibit on public health administration which the American Museum of Health presents in its program of health education. How the expectancy of life has increased in the last fifty years and by what methods this increase has been achieved is the main feature of the exhibit. A special device enables the visitor to check his average life expectancy. A demonstration of home care in communicable diseases proved a most popular addition to this exhibit.

What is Your Health I. Q.? is another of those quiz programs, which are always popular. In this section, which is presented by the American Social Hygiene Association with the cooperation of the United States Public Health Service, the visitor may test his knowledge of syphilis, gonorrhea and

season will find many new features to make a second visit to this building well worth while.

In addition to the Medicine and Public Health Building exhibits, physicians will want to visit the many foreign buildings and the New York State and City buildings, where special sections are devoted to the work of health departments and agencies. The Federal Building devotes one of its twelve themes to Social Welfare; and striking dioramas, animated murals and transparent sculptures illustrate the many ways in which the federal government protects the health of the people by working with states and communities on public health problems. Many of the industrial buildings too include the important subjects of health and medical and scientific research in their exhibits.

REGISTRATION

The Bureau of Registration will be located on the second floor of the Grand Central Palace, Lexington Avenue between 46th and 47th streets. Members of the Subcommittee on Registration of the Local Committee on Arrangements will be on hand to assist those who desire to register. A branch postoffice in charge of government postoffice officials will be available for visitors, and an information bureau will be operated in connection with the Bureau of Registration.

Who May Register

Only Fellows, Affiliate, Associate and Honorary Fellows, and Invited Guests may register and take part in the work of the sections. Fellows of the Scientific Assembly are those who have, on the prescribed form, applied for Fellowship, subscribed to *THE JOURNAL* and paid their Fellowship dues for the current

year. Fellowship dues and subscription to *THE JOURNAL* are included in the one annual payment of eight dollars, which is the regular subscription price of *THE JOURNAL*. Fellowship cards are sent to all Fellows after payment of annual dues, and these cards should be presented at the registration window. Any who have not received cards for 1940 should secure them at once by writing to the American Medical Association, 535 North Dearborn Street, Chicago.

Members in Good Standing Eligible to Apply for Fellowship in the Association

Members in good standing in the American Medical Association are those members of component county medical societies and of constituent state and territorial medical associations whose names are officially reported for enrolment to the Sec-

retary of the American Medical Association by the secretaries of the constituent medical associations. All members in good standing may apply for Fellowship in the Scientific Assembly and are urged to qualify as Fellows before leaving home in order that pocket cards may be secured and brought to New York so that registration can be more easily and more promptly effected.

Application forms may be had on request.

Those subscribers to *THE JOURNAL* who have not received pocket cards for 1940 should write to the American Medical Association in order to obtain application blanks and information as to further requirements.

Register Early

Fellows living in New York City, as well as all other Fellows who are in New York City on Monday and Tuesday, should register as early as possible. The names of those who register will be included in the issue of the *Daily Bulletin* appearing the next day, and this will enable visiting physicians to find friends if they have registered.

Suggestions That Will Facilitate Registration

Fellows should fill out completely the spaces on both sections of the front of the *white* registration card, which will be found on the tables in front of the Registration Bureau.

Physicians who desire to qualify as Fellows should fill out completely the spaces on both sections of the front of the *blue* registration card and sign the application on the back. These cards will be found on the tables.

Entries on the registration cards should be written plainly, or printed, as the cards are given to the printer to use as "copy" for the *Daily Bulletin*, published on Tuesday, Wednesday, Thursday and Friday of the week of the session.

Fellows who have their pocket cards with them can be registered with little or no delay. They should present the filled out *white* registration card, together with the pocket card, at one of the windows marked "Registration by Pocket Card." There the clerk will compare the two cards, stamp the pocket card and return it, and supply the Fellow with a badge, a copy of the official program and other printed matter of interest to those attending the annual session.

As previously stated, it will assist in registering if those who desire to qualify as Fellows will file their applications and qualify as Fellows by writing directly to the American Medical Association, 535 North Dearborn Street, Chicago, so that their Fellowship may be entered not later than May 20. Any applications that are received later than May 20 will be given prompt attention, but the Fellowship pocket card may not reach the applicant in time for him to register at the New York session.

It will be possible for members of the organization to qualify as Fellows at New York. In order to do this, applicants for Fellowship will be required to fill out both sections of the front of the *blue* registration card and to sign the formal application that is printed on the reverse side of the card. It is suggested that those members who apply for Fellowship at New York bring with them their state membership cards for the year 1940. The state membership card should be presented along with the filled in *blue* registration card at the window in the booth marked "Applicants for Fellowship and Invited Guests."

As already stated, registration can be effected more easily and more promptly if members will qualify as Fellows before leaving home.

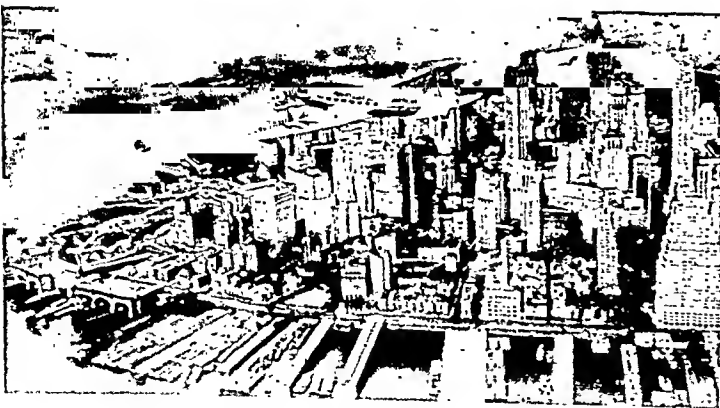
Registration for General Officers and Delegates at The Waldorf-Astoria

General Officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly in the Basildon Room, adjacent to the Jade Room of The Waldorf-Astoria. This arrangement is made for the convenience of the members of the House of Delegates, which will convene on Monday morning at 10 o'clock in the Jade Room of The Waldorf-Astoria. Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates. Registration of delegates for the Scientific Assembly will begin at 8 o'clock, Monday morning, June 10, and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House.

TRANSPORTATION

Railroad Rates to New York

Because of the reduction in one way fares effective June 1, 1936, the use of convention fares has been discontinued in the territories of railway passenger associations.



AN AERIAL VIEW OF DOWNTOWN MANHATTAN. BATTERY PARK IS AT THE LEFT AND THE HUDSON RIVER IN THE BACKGROUND

In the territory of the Central Passenger Association and in that of the Trunk Line Association, round trip fares good in sleeping or parlor cars or coaches may be in effect at the time of the annual session. Moreover, there is in effect daily in these territories a round trip twenty day limit party fare of

approximately $1\frac{1}{2}$ cents a mile for groups of twenty-five or more traveling together on one ticket and returning individually. The suggestion is offered that members of the Association traveling to New York from the territories of the Central Passenger and Trunk Line associations consult their ticket agent a week or so in advance of the time at which they expect to start to New York for the exact rates that will be in effect then, not only for individuals but also for parties that may be traveling together.

In the territory of the Southern Passenger Association, daily round trip fares are in effect to New York on the basis of $2\frac{1}{2}$ cents a mile in each direction to the gateways of its territory, plus double the one way first class fares therefrom, with limit of six months in addition to date of sale, tickets being honored in sleeping or parlor cars on payment of charges for space occupied. Moreover, reduced fares are in effect on a slightly lower basis from all points in the Southern Passenger Association territory to New York for tickets which bear a limit of thirty days in addition to the date of sale.

In addition to the fares which have just been mentioned, there will be in effect special reduced fares from the South to New York on account of the New York World's Fair 1940.

In the territory of the Trans-Continental and Western Passenger associations low round trip fares will be in effect daily for travel in sleeping and parlor cars on payment of the usual

charges for space occupied. In a part of these territories low intermediate class fares, good for transportation in tourist sleeping cars, will also be available on payment of charges for space occupied.

In the territory of the Canadian Passenger Association, in addition to one way tickets, round trip tickets may be purchased which are computed on the basis of 10 per cent less than double one way fares, bear limit of six months from date of sale and are available for stop over privileges. Moreover, summer or other reduced fares are in effect during certain parts of the year, details of which are available on application to any railway agent.

For information regarding specific fares and the most advantageous arrangements from starting points, all members who expect to attend the annual session in New York are urged to consult their local ticket agents.

Air Travel

By air, New York is just a few hours from most important cities in the United States. Sleeper accommodations are available on overnight journeys on most of the transcontinental services. Your nearest Airline Ticket Office, Travel Bureau, Hotel Transportation Desk or Western Union or Postal Telegraph Office will gladly arrange your itinerary.

NEW YORK HOTELS

A list of New York hotels is presented for the benefit of those who expect to attend the annual session of the American Medical Association, June 10-14. Dr. Peter Irving is chairman of the Subcommittee on Hotels of the Local Committee on Arrangements and may be addressed at Room 1036, 233 Broadway, New York, N. Y. The advertising announcement and

coupon for reservations appear on advertising page 88 of this issue.

Since reservations are cleared through the subcommittee on hotels, it will greatly expedite matters if requests for reservations are addressed directly to Dr. Irving, who, as stated, may be reached at Room 1036, 233 Broadway, New York, N. Y.

Schedule of Rates

Hotels	For 1 Person	For 2 Persons			Suites
		Double Bed	Twin Beds		
ALDEN 225 Central Park W.....	\$4.00-\$5.00	\$5.00-\$6.00	\$5.00-\$6.00	\$7.00-\$18.00	
ALGONQUIN 59 W. 44th St.....	3.50- 4.50	5.00- 7.00	5.00- 7.00	7.00- 10.00	
ALLERTON HOUSE 143 E. 39th St.....	2.00*				
AMBASSADOR 51st St. and Park Ave.....	6.00- 8.00		8.00-10.00	12.00- 30.00	
BARCLAY 111 E. 48th St.....	6.00- 7.00		8.00-10.00	14.00- 17.00	
BELMONT-PLAZA Lexington Ave. and 49th St.	3.00 4.00	5.00- 6.00	6.00- 7.00	8.00- 25.00	
BERKLEY 170 W. 74th St.....	2.50- 4.00	3.00- 4.50	3.50- 5.00	4.00- 6.00	
BEVERLY Lexington Ave. and 50th St.	4.00	5.00	6.00- 7.00	8.00- 25.00	
BILTMORE Madison Ave. and 43d St....	5.00- 7.00	7.00-10.00	7.00-10.00	15.00- 18.00	
BRISTOL 129 W. 48th St.....	2.50- 4.00	4.00- 5.00	6.00- 7.00	8.00- 10.00	
CAPITOL Eighth Ave. and 51st St....	2.25*-3.50	5.50- 8.00	6.50- 9.00	10.00- 14.00	
CARDINAL 243 West End Ave.....	3.00		4.00	5.00	
COLLINGWOOD 45 W. 35th St.....	3.00- 6.00	4.50- 8.00	6.50- 9.00	8.00- 10.00	
COMMODORE Lexington Ave. and 42d St..	3.00- 5.00	5.00- 6.50	6.00- 8.00	10.00- 18.00	
CONCOURSE PLAZA Gr. Concourse and 161st St..	3.00	4.50	4.50	6.00- 10.00	
DORSET 30 W. 54th St.....	5.00		6.00- 7.00	10.00- 18.00	
DRAKE 440 Park Ave.....	6.00		5.00	10.00- 18.00	
EMPIRE Broadway and 63d St.....	2.50	3.50	4.00	7.00- 10.00	
ESSEX HOUSE 160 Central Park South.	6.00- 7.00	8.00- 9.00	8.00- 9.00	10.00- 22.00	
FIFTH AVENUE HOTEL Fifth Ave. and Ninth St....	4.00- 5.00		6.00- 8.00	7.00- 12.00	
FORREST 224 W. 49th St.....	3.50- 6.00	5.50- 8.00	6.50- 9.00	10.00- 14.00	
GEORGE WASHINGTON 23d St. and Lexington Ave..	2.50- 4.00	3.50- 5.00	4.00- 6.00		
GOVERNOR CLINTON Seventh Ave and 31st St....	3.50- 4.00	5.00- 6.00	6.00- 8.00	8.00- 20.00	
GREYSTONE BI	2.50- 3.00 4-5 persons, \$2.00 each)	3.50	4.00		
HAMILTON 141 W. 73d St.....	3.00		4.00	6.00- 8.00	
HERALD SQUARE 116 W. 34th St.....	2.00*-2.50*	4.00*-5.00	6.00		
KENMORE HALL 145 E. 23d St.....	2.00- 2.50	3.50- 5.50	4.00- 6.00	5.00- 8.00	
KNICKERBOCKER 120 W. 45th St.....	2.50- 4.00	4.00- 6.00	5.00- 6.00	7.00- 10.00	
LINCOLN Eighth Ave. and 41th St.....	3.00- 4.50*	4.00- 0.50	4.50- 6.50	9.00- 12.00	
MARCY 720 West End Ave.....	3.00- 5.00		4.00- 6.00	7.00- 9.00	
MARTINIQUE Broadway and 32d St....	1.50*-2.00*-3.00 3.50*-3.50* 3.50- 4.50	3.00*-3.50*	4.00- 5.00	8.00- 10.00	
McALPIN Broadway and 34th St.....	3.50- 5.00	5.00- 6.00	5.00- 9.00	10.00- 15.00	
MIDSTON HOUSE 22 E. 38th St.....	2.25*				
NEW WESTON Madison Ave. and 50th St...	4.00- 6.00		6.00- 9.00	12.00- 24.00	
NEW YORKER Eighth Ave. and 34th St....	3.50- 5.00	5.00- 7.00	6.00-10.00	8.00- 21.00	
PARK CENTRAL Seventh Ave. and 53th St....	4.00- 4.50 (2 room suite, 4 persons, \$2.50 each)	5.00- 6.00	6.00- 7.00	7.00- 8.00	
PARK CHAMBERS 68 W. 58th St.....	3.00		4.00	6.00- 10.00	
PARKSIDE 18 Gramercy Park South..	2.00*-2.50* 2.50- 3.00		5.00- 6.00		
PENNSYLVANIA Seventh Ave. and 33d St....	4.00- 5.00	6.00- 7.00	7.00- 9.00	10.00- 13.00	
PICCADILLY 227 W. 45th St.....	3.50- 6.00	5.50- 8.00	6.50- 9.00	10.00- 14.00	
PLYMOUTH 143 W. 49th St.....	3.50- 6.00	5.50- 8.00	6.50- 9.00	10.00- 14.00	
PRESIDENT 234 W. 48th St.....	3.50- 6.00	5.50- 8.00	6.50- 9.00	10.00- 14.00	
PRINCE GEORGE E. 28th St. between 5th and Madison.....	2.50- 4.00	4.00- 6.00	4.50- 7.00	7.00- 8.00	
RITZ TOWER Park Ave. and 37th St.....	6.00- 8.00		8.00-14.00	12.00- 45.00	
ROOSEVELT Madison Ave. at 45th St....	4.00- 7.00	6.00- 8.00	7.00-10.00	12.00- 18.00	
St. JAMES 109 W. 45th St.....	2.50- 3.00	4.00- 5.00	5.00- 6.00	8.00- 10.00	
SEYMOUR 50 W. 45th St.....	4.00		6.00	8.00- 14.00	
SHELTON Lexington Ave. and 49th St.	3.00- 4.00 2.25*		5.00	7.00	
TAFT Seventh Ave. and 50th St....	3.50	5.00	6.00		
TIMES SQUARE Eighth Ave. and 43d St.....	3.00 (Connecting bath, \$2.50 single)	4.00- 5.00	5.00- 6.00		
TUDOR 301 E. 42d St.....	3.00	5.00	6.00	8.00	
VANDERBILT Park Ave. and 31th St.....	4.00- 6.00	6.00- 8.00	6.00- 9.00	8.00- 10.00	
WALDORF-ASTORIA Park Ave. and 50th St....	6.00- 8.00 (All conditioned rooms)...		9.00-11.00 11.00-15.00	15.00- 22.00 25.00- 23.00	
WARWICK 65 W. 54th St.....	4.50- 6.00		7.00- 8.00	8.00- 12.00	
WELLINGTON Seventh Ave. and 55th St....	3.00- 3.50	4.00- 4.50	5.00		

* All rates are for rooms with bath, unless asterisked.



THE BILTMORE

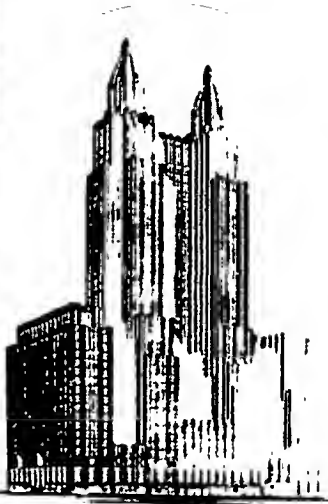
Some
New York
Hotels



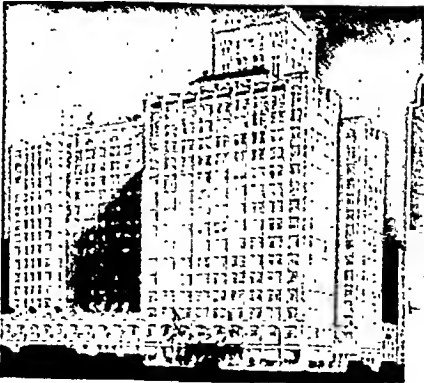
THE COMMODORE



ABOVE AND TO THE RIGHT,
THE WALDORF-ASTORIA



THE PENNSYLVANIA



THE BELMONT-PLAZA



THE ROOSEVELT



MEETING PLACES

HOUSE OF DELEGATES: Basildon and Jade Rooms of The Waldorf-Astoria, Park Avenue and 50th Street.

OPENING GENERAL MEETING: Grand Ballroom of The Waldorf-Astoria, Park Avenue and 50th Street.

GENERAL SCIENTIFIC MEETINGS: Grand Ballroom of The Waldorf-Astoria, Park Avenue and 50th Street, and Grand Ballroom of The Commodore, Lexington Avenue and 42d Street.

GENERAL HEADQUARTERS, SCIENTIFIC EXHIBIT, REGISTRATION BUREAU, TECHNICAL EXHIBITS, INFORMATION BUREAU AND BRANCH POSTOFFICE: Grand Central Palace, Lexington Avenue between 46th and 47th streets.

SECTIONS OF SCIENTIFIC ASSEMBLY

PRACTICE OF MEDICINE: Grand Ballroom of The Waldorf-Astoria, Park Avenue and 50th Street.

SURGERY, GENERAL AND ABDOMINAL: Grand Ballroom of The Commodore, Lexington Avenue and 42d Street.

OBSTETRICS AND GYNECOLOGY: Grand Ballroom of The Commodore, Lexington Avenue and 42d Street.

OPHTHALMOLOGY: Grand Ballroom of The Roosevelt, Madison Avenue at 45th Street.

LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY: Grand Ballroom of The Roosevelt, Madison Avenue at 45th Street.

PEDIATRICS: Grand Ballroom of The Waldorf-Astoria, Park Avenue and 50th Street.

PHARMACOLOGY AND THERAPEUTICS: Music Room of The Biltmore, Madison Avenue and 43d Street.

PATHOLOGY AND PHYSIOLOGY: Music Room of The Biltmore, Madison Avenue and 43d Street.

NERVOUS AND MENTAL DISEASES: Ballroom of The Biltmore, Madison Avenue and 43d Street.

DERMATOLOGY AND SYPHILOLOGY: West Ballroom of The Commodore, Lexington Avenue and 42d Street.

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH: Hendrik Hudson Room of The Roosevelt, Madison Avenue at 45th Street.

UROLOGY: West Ballroom of The Commodore, Lexington Avenue and 42d Street.

ORTHOPEDIC SURGERY: Ballroom of The Biltmore, Madison Avenue and 43d Street.

GASTRO-ENTEROLOGY AND PROCTOLOGY: Hendrik Hudson Room of The Roosevelt, Madison Avenue at 45th Street.

RADIOLOGY: East Ballroom of The Commodore, Lexington Avenue and 42d Street.

MISCELLANEOUS TOPICS, SESSION ON ANESTHESIA: East Ballroom of The Commodore, Lexington Avenue and 42d Street.

GENERAL SCIENTIFIC MEETINGS

MONDAY, JUNE 10—2 P. M.

GRAND BALLROOM OF THE WALDORF-ASTORIA

PROGRAM BY NEW YORK PHYSICIANS

Further Cine-Roentgenographic Studies of the Pulmonary Circulation, the Cardiac Chambers and the Large Blood Vessels (Motion Picture Demonstration).

W. H. STEWART, C. W. BREIMER and H. C. MAIER.

Criteria Determining Surgical Therapy in Splenopathies.

ALLEN O. WHIPPLE.

The Drama of Tuberculosis. JAMES ALEXANDER MILLER.

A Consideration of Recent Developments in the Surgical Management of the Obstructing Prostate.

JOSEPH F. MCCARTHY.

Therapeutic Conference: Digitalis in Heart Failure.

WALTER L. NILES, McKEEN CATTELL, HARRY GOLD and EUGENE F. DU BOIS.

TUESDAY, JUNE 11—9 A. M.

GRAND BALLROOM OF THE WALDORF-ASTORIA

SYMPOSIUM ON CHEMOTHERAPY

Chemotherapy in Urology. EDWARD N. COOK, Rochester, Minn.

Use and Abuse of Chemotherapy in Obstetrics and Gynecology.

FRED L. ADAIR, H. CLOSE HESSELTINE and LUCILE HAC, Chicago.

Sulfanilamide in Surgical Infections: Its Possibilities and Limitations (Lantern Demonstration).

JOHN S. LOCKWOOD, Philadelphia.

The Use of Sulfanilamide and Related Compounds in Diseases of Infancy and Childhood. BENJAMIN W. CAREY, Detroit.

The Toxic Manifestations of Sulfanilamide and Its Derivatives with Reference to Their Importance in the Course of Therapy. PERRIN H. LONG, JAMES W. HAVILAND, LYDIA B. EDWARDS and ELEANOR A. BLISS, Baltimore.

TUESDAY, JUNE 11—2 P. M.

MEDICAL DIVISION: GRAND BALLROOM OF THE WALDORF-ASTORIA

Nutritional Diseases in the United States.

W. H. SERRELL, Washington, D. C.

Newly Recognized Deficiency Diseases and Their Treatment (Lantern Demonstration). TOM D. SPIES, Cincinnati.

New Light on the Mechanisms by Which Emotion Causes Disease. WALTER C. ALVAREZ, Rochester, Minn.

The Diagnosis of Heart Failure (Lantern Demonstration).

TINSLEY R. HARRISON, Nashville, Tenn.

The Management of Patients with Heart Failure.

SAM A. LEVINE, Boston.

TUESDAY, JUNE 11—2 P. M.

SURGICAL DIVISION: GRAND BALLROOM OF THE COMMODORE

Management of Repeated or Habitual Abortion (Lantern Demonstration).

E. D. PLASS, Iowa City.

Varicose Veins and Their Complications (Lantern Demonstration).

GEZA DE TAKATS, Chicago.

The Problems Attending the High Mortality Rate in Appendicitis.

ERWIN R. SCHMIDT, Madison, Wis.

The Results of Supradiaphragmatic Splanchnicectomy in the Treatment of Hypertension.

MAX M. PEET, Ann Arbor, Mich.

Gonorrhea in the Male: Results of Treatment with Sulfanilamide.

COMMITTEE FOR THE COOPERATIVE CLINICAL SURVEY OF THE TREATMENT OF GONORRHEA: P. S. PLOUTZ, Chairman, Philadelphia; OSCAR F. COX, Boston; ROGERS DEAKIN, St. Louis; ANSON L. CLAPP, Oklahoma City; ROGER W. BARNES, Los Angeles, and R. A. VONDERLEHR and LIDA J. USULTON, Washington, D. C.

SYMPOSIUM ON HEALTH PROBLEMS IN EDUCATION

A fourth Symposium on Health Problems in Education, under the sponsorship of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, together with the Section on Ophthalmology, the Section on Laryngology, Otology and Rhinology, the Section on Pediatrics and the Section on Preventive and Industrial Medicine and Public Health of the American Medical Association, will be held in the Grand Ballroom of The Roosevelt, June 11, at 2 p. m. The following program will be presented:

Symposium on What Shall We Teach?

I. H. GOLDBERGER, New York, Presiding

The Bureau of Vital Statistics Reveals National Health Problems.

H. L. DUNN, Washington, D. C.

The College Health Survey Reveals Certain Needs of the Lower Schools. RUTH E. BOYNTON, Minneapolis.

Relationships Between Health Examinations and Health Education. CHARLES C. WILSON, Hartford, Conn.

The Interests of Children versus Dicta of Experts as Bases for Health Instruction. DOROTHY B. NYSWANDER, New York.

Discussion to be opened by WILLIAM R. KELLY and ALICE V. KELIHER, New York; DEAN F. SMILEY, Ithaca, N.Y.; HARRY E. KLEINSCHMIDT, New York; GEORGE M. LYON, Huntington, W. Va.; IRA V. HISCOCK, New Haven, Conn., and RUTH MORRIS BAKWIN, New York.

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Subcommittees

Subcommittee on Sections and Section Work: Irving S. Wright, Chairman.

Practice of Medicine: Maximilian A. Ramirez, Chairman.

Surgery, General and Abdominal: Henry W. Cave, Chairman.

Obstetrics and Gynecology: Albert H. Aldridge, Chairman.

Ophthalmology: Conrad Berens, Chairman.

Laryngology, Otology and Rhinology: Westley M. Hunt, Chairman.

Pediatrics: Adolph G. DeSanctis, Chairman.

Pharmacology and Therapeutics: Charles C. Lieb, Chairman.

Pathology and Physiology: Ward J. MacNeal, Chairman.

Nervous and Mental Diseases: Charles A. McKendree, Chairman.

Dermatology and Syphilology: Howard Fox, Chairman.

Preventive and Industrial Medicine and Public Health: Haven Emerson, Chairman.

Urology: Clarence G. Bandler, Chairman.

Orthopedic Surgery: Arthur Krida, Chairman.

Gastro-Enterology and Proctology: Burrill B. Crohn, Chairman.

Radiology: Henry K. Taylor, Chairman.

Subcommittee on Registration and Hotels: Peter Irving, Chairman.

Subcommittee on Scientific Exhibit: David J. Kaliski, Chairman.

Subcommittee on Publicity: Samuel J. Kopetzky, Chairman.

Subcommittee on Finance: George W. Kosmak, Chairman.

Subcommittee on Women Physicians: Madge C. L. McGuinness, Chairman.

Subcommittee on Hospitals and Clinics: A. Wilbur Duryee, Chairman.



CHARLES GORDON HEYD, M.D.,
Chairman of the Local Committee on Arrangements

Subcommittee on Transportation: John C. A. Gerster, Chairman.

Subcommittee on Entertainment: William Bayard Long, Chairman.

Opening General Meeting: Walter P. Anderton, Chairman.

Alumni and Fraternity Reunions: Norman E. Titus, Chairman.

Golf: James Craig Joyner, Chairman.

Distinguished Guests: Frederic E. Sondern, Chairman.

Women's Entertainment: Josephine H. Kenyon, Chairman.

Woman's Auxiliary: Mrs. Carlton Potter, Syracuse, N. Y., Chairman.

ENTERTAINMENT

Dinner for Delegates

A dinner and entertainment is being arranged for Monday, June 10, at the New York World's Fair for members of the House of Delegates and officers of the American Medical Association. Complete information concerning the dinner and entertainment will be available at the first meeting of the House of Delegates on Monday morning, June 10.

Luncheon for Delegates

A luncheon for the members of the House of Delegates and the officers of the American Medical Association is being planned for Tuesday noon, June 11, between the morning and afternoon sessions of the House of Delegates at The Waldorf-Astoria.

Opening General Meeting

The Opening General Meeting will be held on Tuesday evening, June 11, in the Grand Ballroom of The Waldorf-Astoria. The program will begin at 8 o'clock.

President's Reception and Ball

The President of the American Medical Association will be honored with a reception and ball to be held Thursday evening, June 13, at 9 o'clock in the Grand Ballroom of The Waldorf-Astoria.

Alumni Fraternity and Group Dinners and Luncheons

Notice has been received of the following alumni, fraternity and group dinners and luncheons to be held during the time of the session:

ALPHA KAPPA KAPPA FRATERNITY, Wednesday, June 12, Hotel Lexington

ALPHA OMEGA ALPHA, Thursday, June 13, 6:30 p. m., at The Waldorf-Astoria. Dr. Irvin Abell will present the William W. Root lecture. Adjourn promptly at 9 p. m. for President's Reception.

ALUMNI ASSOCIATION OF THE UNIVERSITY OF LOUISVILLE, Wednesday, June 12, 6:30 p. m., at the Shelton Hotel.

ALUMNI ASSOCIATION OF THE UNIVERSITY OF MINNESOTA MEDICAL SCHOOL.

ALUMNI ASSOCIATION OF THE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE.

ALUMNI OF ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, Wednesday, June 12, 8 p. m., at Sherry's.

ASSOCIATED DIPLOMATES OF THE NATIONAL BOARD OF MEDICAL EXAMINERS, Wednesday, June 12, 12:30 p. m., at the Belmont-Plaza Hotel.

ASSOCIATED STATE POSTGRADUATE COMMITTEES, Wednesday, June 12, 12 noon.

ASSOCIATION OF ALUMNI OF COLLEGE OF PHYSICIANS AND SURGEONS OF COLUMBIA UNIVERSITY, Wednesday, June 12, 7 p. m., at Columbia University Club. Dr. W. C. Rappleye will speak. Tickets at \$5 may be secured by writing Dr. J. A. Clinton Gray, 115 East 61st Street, New York.

HARVARD MEDICAL ALUMNI ASSOCIATION, Wednesday, June 12, 7:15 p. m., at the Harvard Club. The speakers will be James B. Conant, C. Sidney Burwell, Lincoln Davis and Cornelius P. Rhoads.

JEFFERSON MEDICAL COLLEGE ALUMNI ASSOCIATION, Wednesday, June 12, 7 p. m., at the Hotel Murray Hill. Tickets, \$2.50 each. Request for reservations may be addressed to Dr. Thomas F. Dubigg, Hotel Murray Hill, Park Avenue at 41st Street, New York.

PHI CHI MEDICAL FRATERNITY, Thursday, June 13, 12:30 p. m., at the Shelton Hotel. Reservations may be secured at the Phi Chi Booth in the Grand Central Palace or by writing Dr. Abbott W. Allen, 117 East 72d Street, New York.

PHI DELTA EPSILON FRATERNITY, Wednesday evening, June 12, in the Sert Room of The Waldorf-Astoria. Reservations may be made by addressing Dr. Aaron Brown, 39 West 55th Street, New York.

RUSH MEDICAL COLLEGE, UNIVERSITY OF CHICAGO, ALUMNI, Wednesday, June 12, Astor Gallery of The Waldorf-Astoria; informal; \$4 a plate; ladies invited. Drs. James B. Herrick, Ludwig Hektoen, George Washington Hall, E. E. Irons, Wilbur Post, George Dick, Morris Fishbein and others will speak on Rush Medical College—Old and New—and the University of Chicago. Reservations may be secured by writing Dr. Austin A. Hayden, 25 East Washington Street, Chicago, until June 5; after that date reservations should be addressed to Dr. Hayden at The Waldorf-Astoria, New York.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY, Wednesday, June 12, 12:30 p. m., in the Small Ballroom of The Roosevelt.

SECTION ON PEDIATRICS, Thursday evening, June 13, at The Waldorf-Astoria.

American Physicians' Art Association

The American Physicians' Art Association will hold its third annual exhibition jointly with the Thirteenth Annual Exhibition of the New York Physicians' Art Club, at the Belmont-Plaza Hotel, June 10 to 14. Original work in painting, sculpture, photography and artcraft will be exhibited and trophies will be awarded.

WOMAN'S AUXILIARY

The headquarters of the Woman's Auxiliary will be at the Hotel Pennsylvania. All physicians' wives, whether auxiliary members or not, and their guests are cordially invited to attend the general sessions and participate in social functions and all are asked to register at the registration desk on the Ballroom floor of the Hotel Pennsylvania where programs of daily events and literature will be distributed and tickets for various activities may be procured. Registration will begin Sunday, June 9, at 12 noon and will continue daily through Thursday, June 13, from 8:30 a. m. to 4 p. m.

New York's many attractions made it desirable to deviate from the customary sightseeing and to evolve a program permitting visitors freedom of choice. Members and guests will be furnished strips of tickets covering several excursions which, when presented either singly or in groups, will allow bearer group rates. These strip tickets may be used any time during the week and will include boat trips around Manhattan Island, motor tours, and visits to the Hayden Planetarium, Rockefeller Center, N. B. C. Studios and Empire State Observatories. Suggestions will be provided on application at headquarters. Monday will be the best day for sightseeing. All who attend the session are asked to make reservations and purchase tickets for all functions as soon as possible after arrival.

SUNDAY, JUNE 9

All meetings will begin precisely at the hour indicated, eastern daylight saving time.

12 m. to 4:00 p.m. Registration: Foyer, Ball Room Floor.

4:00 p. m. to 7:00 p. m. Auxiliary members and guests will be welcomed by the Hospitality Committee.

Tea at Sherry's, 300 Park Avenue, in honor of Mrs. Rollo K. Packard, president. Members of the Board of Directors of the Woman's Auxiliary will be guests of the Local Committee on Arrangements.

MONDAY, JUNE 10

10:00 a. m. Meeting of Board of Directors: Parlor 1.

Afternoon and Evening. Sightseeing, using strip ticket.

TUESDAY, JUNE 11

- 9:00 a. m. Formal opening of the Convention of the Woman's Auxiliary to the American Medical Association: Grand Ballroom, Hotel Pennsylvania.
- 12:30 p. m. Luncheon, Hotel Pennsylvania, in honor of the past presidents of the Woman's Auxiliary to the American Medical Association.

Speakers: Dr. Rock Sleyster, President, American Medical Association, and Dr. Morris Fishbein, Editor, *THE JOURNAL* and *HYGIEA*. Auxiliary members and guests are invited to attend the luncheon. (Fee \$1.75, including gratuities.)



ALPHONSE McMAHON, M.D.

St. Louis

Vice President of American Medical Association, 1939-1940

- 3:00 p. m. Conference for presidents and chairmen of committees of auxiliaries to state medical societies: Parlor 1.
- 8:00 p. m. The Opening General Meeting of the American Medical Association: Grand Ballroom, The Waldorf-Astoria. Auxiliary members and guests are invited to attend.

WEDNESDAY, JUNE 12

- 9:00 a. m. General Session of Woman's Auxiliary: Grand Ballroom, Hotel Pennsylvania.
- 1:00 p. m. Annual luncheon, Hotel Pennsylvania. Speakers: Dr. Nathan B. Van Etten, President-Elect of the American Medical Association, and Rev. Alphonse M. Schwitalla, Dean of the School of Medicine, St. Louis University. Auxiliary members and guests are invited to attend the luncheon. (Fee \$1.75, including gratuities.)
- Afternoon and Evening. Visit to World's Fair. Sightseeing or shopping.
- 6:00 p. m. Scenic Flights over New York City in modern flagships of American Airlines.

THURSDAY, JUNE 13

- 9:30 a. m. Post Convention Meeting of Executive Board of the Woman's Auxiliary: Parlor 1.
- 10:00 a. m. Meeting of Board of Directors of the Woman's Auxiliary: Parlor 1.
- 10:00 a. m. Scenic flights over New York City in modern airliners of United Airlines, Eastern Airlines and T. W. A. (subject to available equipment) and a "backstage" tour of New York's new municipal airport, followed by luncheon on the terrace overlooking the world's busiest Air Terminal.
- Afternoon. Sightseeing, using strip tickets.
- 6:30 p. m. Annual dinner for members, husbands, guests, Hotel Pennsylvania. (Fee \$3, including gratuities.) The dinner will terminate in time for all to attend the President's Reception and Ball given by the American Medical Association.
- 9:00 p. m. Reception and Ball in honor of the President of the American Medical Association: Grand Ballroom, The Waldorf-Astoria. Members of the Auxiliary and guests are invited to attend.

FRIDAY, JUNE 14

- 10:30 a. m. Scenic Flights.
- Afternoon and Evening. Visit to World's Fair. Sightseeing or shopping.

JUNE 9-14, DAILY

- 9:30 a. m. to 5:00 p. m. Auxiliary Exhibits: Parlor 2, Hotel Pennsylvania.

AMERICAN MEDICAL WOMEN'S ASSOCIATION

The headquarters of the American Medical Women's Association will be at the Park Lane Hotel.

The following program has been arranged:

SUNDAY, JUNE 9

- Morning. Registration. Meeting of Board of Directors.
- 12:30 p. m. Informal luncheon.
- Evening. Buffet supper at home of Dr. E. D. Barringer, New Canaan, Conn.

MONDAY, JUNE 10

- 9:00 a. m. Registration.
- 9:30 a. m. Annual business meeting.

- 12:30 p. m. Luncheon at Park Lane Hotel, the speakers to be announced.

- 2:30 p. m. Annual business meeting.
- 7:30 p. m. Banquet, with Dr. N. S. Noble presiding. The speakers will be Dr. Elizabeth Mason-Hohl, Los Angeles, and Dr. Alice Stone Woolley, Poughkeepsie, N. Y.

TUESDAY, JUNE 11

- Meeting of the new Board of Directors.

SATURDAY, JUNE 15

- World's Fair Day.

GOLF TOURNAMENT

The American Medical Golfing Association will hold its twenty-sixth annual tournament at Winged Foot Golf Club, Mamaroneck, Westchester County, N. Y., on Monday, June 10. Members may tee off from 7:30 a. m. to 2 p. m.

FIFTY TROPHIES AND PRIZES

Thirty-six holes of golf will be played in competition for the fifty trophies and prizes in the eight events. Trophies will be awarded for the Association Championship, thirty-six holes



THE WINGED-FOOT GOLF CLUB, MAMARONECK, N. Y., WHERE THE ANNUAL TOURNAMENT OF THE AMERICAN MEDICAL GOLFING ASSOCIATION WILL BE HELD JUNE 10. THE NATIONAL OPEN WAS PLAYED ON THIS COURSE IN 1929; THE WINNER WAS BOBBY JONES. THE NATIONAL AMATEUR CHAMPIONSHIP WILL BE HELD HERE IN SEPTEMBER, 1940

gross, the Will Walter Trophy; the Association Handicap Championship, thirty-six holes net, the Detroit Trophy; Championship Flight, First Gross, thirty-six holes, the St. Louis Trophy; Championship Flight, First Net, thirty-six holes, the President's Trophy; Eighteen Hole Championship, the Golden State Trophy; Eighteen Hole Handicap Championship, the Ben Thomas Trophy and the Atlantic City Trophy; Maturity Event, limited to Fellows over 60 years of age, the Minneapolis Trophy; and the Oldguard Championship, limited to competition of past presidents, the Wendell Phillips Trophy. Forty other prizes will be awarded for the various flights.

FELLOWS IN EVERY STATE OF THE UNION

Dr. George Washington Hall of Chicago is president, and Dr. D. H. Houston of Seattle and Dr. Grayson Carroll of St. Louis are vice presidents of the A. M. G. A., which was organized in 1915 by Drs. Will Walter, Wendell Phillips and Gene Lewis and now totals 1,565 members representing every state of the Union. The living past presidents include Drs. Thomas Hubbard of Toledo, Fred Bailey of St. Louis, Robert Moss of LaGrange, Texas, Charlton Wallace of New York, Will Walter of Evanston, Ill., James Eaves of Oakland, Calif., D. Chester Brown of Danbury, Conn., W. D. Sheldon of Rochester, Minn., Walter Schaller of San Francisco, Edwin Zabriskie of New York, Frank A. Kelly of Detroit, John Welsh Croskey of Philadelphia, Homer K. Nicoll of Chicago, Charles Lukens of Toledo, M. M. Cullom of Nashville, W. Albert Cook of Tulsa, Okla., Walt P. Conaway of Atlantic City and E. S. Edgerton of Wichita, Kan.

DR. JAMES CRAIG JOYNER HEADS NEW YORK GOLF COMMITTEE

The New York Golf Committee is under the chairmanship of Dr. James Craig Joyner, 718 Park Avenue, New York City. He will be assisted by Drs. Edwin Zabriskie, Charlton Wallace, Orrin Sage Wightman and Asa Liggett Lincoln.

TWO EIGHTEEN HOLE CHAMPIONSHIP COURSES

The twenty-sixth tournament of the American Medical Golfing Association at Winged Foot promises to be a wonderful affair. The club is one of the most elaborate in the country, with a beautiful clubhouse and two sporty courses. The A. M. G. A.

officers anticipate that some 250 to 300 medical golfers from all parts of the United States will play thirty-six holes in New York on June 10.

APPLICATION FOR MEMBERSHIP

All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. Write Executive Secretary Bill Burns, 2020 Olds Tower, Lansing, Mich., for application blank. Participants in the A. M. G. A. tournament are required to present their home club handicap, signed by the club secretary, at the first tee on the day of play. No handicap over 30 is allowed. Only active Fellows of the A. M. G. A. may compete for prizes. No trophy is awarded a Fellow who is absent from the annual dinner, which is always worth while waiting for!



The Detroit Trophy
Emblematic of The Association Handicap Championship
(Net Score 36 Holes)

It must be won thrice to be held.

Winners

- | | |
|---------------------------------------|--|
| 1916—C. H. Nims, Hot Springs, Ark. | 1929—F. A. Wheaton, Bellingham, Wash. |
| 1917—Fred Bailey, St. Louis. | 1930—Robert Hansen, Marshalltown, Iowa. |
| 1918—J. J. Coons, Columbus. | 1931—S. L. Baysinger, Rolla, Mo. |
| 1919—T. I. Metter, Oak Park, Ill. | 1932—A. C. Smith, Wooster, O. |
| 1920—Fred Bailey, St. Louis. | 1933—W. A. Ryan, Milwaukee. |
| 1921—P. W. Wipperfurth, N. Or. | 1934—R. W. McKelvey, Los Angeles. |
| 1922—R. C. Eaton, Chicago. | 1935—W. H. Taylor, Irwin, Pa. |
| 1923—John Burke, Washington, D. C. | 1936—W. C. Scheidt, Celina, Ohio. |
| 1924—Clarke Brooks, Detroit. | 1937—Paul H. Shiffer, Stroudsburg, Pa. |
| 1925—J. J. Coons, Columbus. | 1938—Rutherford T. Johnstone, Los Angeles. |
| 1926—Charles Lukens, Toledo. | 1939—L. M. Ott, Celina, Ohio. |
| 1927—A. C. Smith, Wooster, O. | |
| 1928—Robert Hansen, Marshalltown, Ia. | |

PRELIMINARY PROGRAM OF THE SCIENTIFIC ASSEMBLY

THE OPENING GENERAL MEETING

Grand Ballroom, The Waldorf-Astoria

Tuesday, June 11—8 p. m.

Music. Doctors' Orchestral Society of New York.

Introduction of the President, ROCK SLEYSTER. WALTER P. ANDERTON, President, Medical Society of the County of New York.

Call to Order by the President, ROCK SLEYSTER.

Invocation.

Welcome to New York:

HON. HERBERT H. LEHMAN, Governor of New York.

HON. F. H. LA GUARDIA, Mayor of New York.

Solo. LEOPOLD GLUSHAK, New York.

Announcements. CHARLES GORDON HEYD, Chairman, Local Committee on Arrangements.

Introduction and Installation of President-Elect, NATHAN B. VAN ETEN, New York.

Address. NATHAN B. VAN ETEN, President.

Presentation of Medal to Retiring President, ROCK SLEYSTER. ARTHUR W. BOOTH, Chairman of the Board of Trustees.

Presentation of Distinguished Service Medal. NATHAN B. VAN ETEN, President.

Music.

THE PROGRAMS OF THE SECTIONS

Outline of the Scientific Proceedings—The Preliminary Program and the Official Program

The following papers are announced to be read before the various sections. The order here is not necessarily the order that will be followed in the Official Program, nor is the list complete. The Official Program will be similar to the programs issued in previous years and will contain the final program of each section with abstracts of the papers, as well as lists of committees, program of the Opening General Meeting, list of entertainments, map of New York, and other information. To prevent misunderstandings and protect the interest of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each Fellow on registration.

SECTION ON PRACTICE OF MEDICINE

MEETS IN GRAND BALLROOM OF THE WALDORF-ASTORIA

OFFICERS OF SECTION

Chairman—WILLIAM S. McCANN, Rochester, N. Y.

Vice Chairman—WILLIAM B. PORTER, Richmond, Va.

Secretary—FRED M. SMITH, Iowa City.

Executive Committee—FRANCIS G. BLAKE, New Haven, Conn.; N. C. GILBERT, Chicago; WILLIAM S. McCANN, Rochester, N. Y.

Wednesday, June 12—2 p. m.

The Use of Histamine in the Treatment of Specific Types of Headaches (Lantern and Motion Picture Demonstration). BAYARD T. HORTON, Rochester, Minn.

Discussion to be opened by EMANUEL LITMAN, New York, and LEONARD G. ROWNTREE, Philadelphia.

The Relation of Control of Diabetes Mellitus to the Healing of Clean and Infected Wounds and to the Incidence of Infection in Clean Wounds (Lantern Demonstration). JAMES A. GREENE, L. W. SWANSON and CARL A. JACOBS, Iowa City.

Discussion to be opened by ELLIOTT P. JOSLIN, Boston, and ROY D. McCURE, Detroit.

The Frank Billings Lecture (Lantern Demonstration).

ELLIOTT P. JOSLIN, Boston.

Aspiration Bronchopneumonia with Special Reference to Aspiration of Stomach Contents (Lantern Demonstration).

ERNEST E. IRONS and CARL W. APPELBACH, Chicago.

Discussion to be opened by J. P. SIMONDS, Chicago.

SYMPOSIUM ON PULMONARY TUBERCULOSIS

Epidemiology of Pulmonary Tuberculosis (Lantern Demonstration). J. ARTHUR MYERS, Minneapolis.

Diagnosis of Pulmonary Tuberculosis (Lantern Demonstration). HUGH M. KINGHORN, Saranac Lake, N. Y.

Treatment of Pulmonary Tuberculosis.

RALPH C. MATSON, Portland, Ore.

Discussion to be opened by H. S. DIEHL, Minneapolis; LOUIS HAMMAN, Baltimore, and ALEXIUS M. FORSTER, Colorado Springs, Colo.

Thursday, June 13—2 p. m.

Election of Officers

Leukopenia: A Discussion of Its Various Modes of Production (Lantern Demonstration).

JOHN S. LAWRENCE, Rochester, N. Y.

Discussion to be opened by GEORGE R. MINOT, Boston, and RUSSELL L. HADEN, Cleveland.

Chairman's Address. WILLIAM S. McCANN, Rochester, N. Y.

The Clinical Syndrome Associated with Inter-capillary Glomerulosclerosis (Lantern Demonstration).

HARRY WALKER and WILLIAM B. PORTER, Richmond, Va.

Discussion to be opened by SOMA WEISS, Boston, and PAUL KIMMELSTIEL, Richmond, Va.

The Relation of the Use of Tobacco to Coronary Disease (Lantern Demonstration).

FREDRICK A. WILLIUS and J. P. ENGLISH, Rochester, Minn.

Discussion to be opened by FRANCIS D. MURPHY, Milwaukee, and GEORGE R. HERRMANN, Galveston, Texas.

The Effect of Distention of Abdominal Viscera on the Coronary Blood Flow and on Angina Pectoris (Lantern Demonstration). N. C. GILBERT and G. V. LEROY, Chicago.

Discussion to be opened by LESTER M. MORRISON, Philadelphia, and C. W. GREENE, Stanford University, Calif.

Clinical and Pathologic Studies in Coronary Artery Disease (Lantern Demonstration).

HERRMAN L. BLUMGART, MONROE J. SCHLESINGER and PAUL M. ZOLL, Boston.

Discussion to be opened by FRED M. SMITH, Iowa City, and WILLIAM D. STROUD, Philadelphia.

Friday, June 14—9 a. m.

JOINT MEETING WITH SECTION ON PHARMACOLOGY AND THERAPEUTICS IN BALLROOM OF THE BALTIMORE

The Effects of Intravenous Solutions on Patients With and Without Cardiovascular Defects (Lantern Demonstration).

FRANCIS D. MURPHY, Milwaukee; HOWARD L. CORRELL, Wauwatosa, Wis., and JOHN C. GRILL, Milwaukee.

Discussion to be opened by N. C. GILBERT, Chicago, and IRVINE H. PAGE, Indianapolis.

The Antipressor Action of Renal Extracts (Lantern Demonstration).

ARTHUR GROLLMAN, Baltimore, and J. R. WILLIAMS JR. and T. R. HARRISON, Nashville, Tenn.

Discussion to be opened by J. MURRAY STEELE, New York; M. C. WINTERNITZ, New Haven, Conn., and EDGAR V. ALLEN, Rochester, Minn.

Treatment of Tetanus (Lantern Demonstration).

HYMAN I. VENER and ALBERT G. BOWER, Los Angeles.

Discussion to be opened by WILLARD J. STONE, Pasadena, Calif., and RICHARD H. MILLER, Boston.

Long-Term Results in the Treatment of Early Syphilis (Lantern Demonstration). PAUL PARGET, Baltimore.

Discussion to be opened by JOSEPH EARLE MOORE, Baltimore, and R. A. VONDERLEHR, Washington, D. C.

Concerning the Mode of Action of Sulfanilamide (Lantern Demonstration).

PHILIP A. SHAFER, St. Louis.

The Treatment of Septicemia: Results Before and Since the Advent of Sulfamido Compounds (Lantern Demonstration).

WALLACE E. HERRELL and ALEX E. BROWN, Rochester, Minn.

Discussion on papers of DR. SHAFFER and DR. HERRELL and BROWN to be opened by FERRIN H. LONG, Baltimore, and WALLACE M. YATER, Washington, D. C.

SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN GRAND BALLROOM OF THE COMMODORE

OFFICERS OF SECTION

Chairman—THOMAS M. JOYCE, Portland, Ore.

Vice Chairman—W. BARCLAY PARSONS, New York.

Secretary—ARTHUR W. ALLEN, Boston.

Executive Committee—HUGH H. TROUT, Roanoke, Va.; HENRY W. CAVE, New York; THOMAS M. JOYCE, Portland, Ore.

Wednesday, June 12—9 a. m.

Treatment of Acute Appendicitis and Its Complications in Children (Lantern Demonstration).

EDWIN M. MILLER and E. H. FELL, Chicago, and CLAYTON E. BROCK, St. Louis.

An Analysis of the Mortality Resulting from Acute Appendicitis (Lantern Demonstration).

EDWARD S. STAFFORD and DAVID H. SPRONG JR., Baltimore.

The Treatment of Appendical Peritonitis (Lantern Demonstration).

D. WOOLFOLK BARROW, Lexington, Ky.

Discussion to be opened by ALTON OCHSNER, New Orleans; E. H. FELL, Chicago, and ARTHUR M. SHIPLEY, Baltimore.

Vitamins in Relationship to Surgical Patients (Lantern Demonstration).

CHARLES C. LUND, Boston.

Plasma Vitamin C and Serum Protein Levels in Wound Disruption (Lantern Demonstration).

JOHN B. HARTZELL, JAMES M. WINFIELD and J. LOGAN IRVIN, Detroit.

Discussion to be opened by THOMAS T. MACKIE, New York.

Perforating Gunshot Wounds of the Abdomen (Lantern Demonstration).

ELKIN L. RIPPY, Nashville, Tenn.

Subcutaneous Injuries of the Abdomen (Lantern Demonstration).

HAROLD PRICE TOTTEN and J. NORMAN O'NEILL, Los Angeles.

Discussion to be opened by ADOLPH A. WALKLING and WALTER E. LEE, Philadelphia, and THOMAS M. JOYCE, Portland, Ore.

Thursday, June 13—9 a. m.

Election of Officers

Hypertension Associated with Unilateral Kidney Infection (Lantern Demonstration).

REED M. NESBIT and RIGDON K. RATLIFF, Ann Arbor, Mich.

Morsus Humanis (Human Bite) (Lantern Demonstration).

FRANK K. BOLAND, Atlanta, Ga.

Discussion to be opened by MICHAEL L. MASON, Chicago, and FRANK L. MELENEY, New York.

Chairman's Address: Combination of Old and New Methods in Repair of Inguinal Hernia (Motion Picture Demonstration).

THOMAS M. JOYCE, Portland, Ore.

Syphilis of the Stomach (Lantern Demonstration).

CARRINGTON WILLIAMS and PAUL KIMMELSTIEL, Richmond, Va.

Discussion to be opened by KARL A. MEYER, Chicago.

Carcinoma of the Stomach (Lantern Demonstration).

HOWARD K. GRAY, Rochester, Minn.

Jejunoplasty for Obstruction Following Gastro-Enterostomy or Subtotal Gastric Resection (Lantern Demonstration).

CARL L. HOAG and JOHN B. DEC. M. SAUNDERS, San Francisco.

Discussion to be opened by J. M. T. FINNEY, Baltimore, and HAROLD BRUNN, San Francisco.

Friday, June 14—9 a. m.

JOINT MEETING WITH SECTION ON ORTHOPEDIC SURGERY

Automobile Accidents in a Rural Area Traversed by a Transcontinental Highway (Lantern Demonstration).

JOHN H. POWERS, Cooperstown, N. Y.

Discussion to be opened by PHILIP D. WILSON, New York.

Fracture of the Ulna with Dislocation of the Head of the Radius (Monteggia Fracture) (Lantern Demonstration).

JAMES S. SPEED and HAROLD B. BOYD, Memphis, Tenn.

Discussion to be opened by HERMAN F. JOHNSON, Omaha, and BENJAMIN FRANKLIN BUZBY, Camden, N. J.

Head Injuries (Lantern Demonstration).

HAROLD C. VORIS, ADRIEN VERBRUGGHEN and JERRY J. KEARNS, Chicago.

Discussion to be opened by S. BERNARD WORTIS, New York, and DONALD MUNRO, Boston.

Indications and Technic for Operative Treatment of the External Tibial Condyle (Bumper Fracture) (Lantern Demonstration).

JOSEPH S. BARR, Boston.

Discussion to be opened by CARL E. BADGLEY, Ann Arbor, Mich.; EARL D. MCBRIDE, Oklahoma City, and HAROLD R. CONN, Akron, Ohio.

The Treatment of Compound Fractures.

HARRY C. BLAIR, Portland, Ore.

Complicated Pott's Fractures Requiring Open Reduction (Lantern Demonstration).

RUFUS H. ALLDREDGE, New Orleans.

Discussion to be opened by PHILIP D. WILSON, New York; FRANK D. DICKSON, Kansas City, Mo., and GEORGE O. EATON, Baltimore.

SECTION ON OBSTETRICS AND GYNECOLOGY

MEETS IN GRAND BALLROOM OF THE COMMODORE

OFFICERS OF SECTION

Chairman—LUDWIG A. EMGE, San Francisco.

Vice Chairman—BUFORD G. HAMILTON, Kansas City, Mo.

Secretary—NORMAN F. MILLER, Ann Arbor, Mich.

Executive Committee—E. D. PLASS, Iowa City; HARVEY B. MATTHEWS, Brooklyn; LUDWIG A. EMGE, San Francisco.

Wednesday, June 12—2 p. m.

Veratrum Viride in the Treatment of Eclampsia: II (Lantern Demonstration).

RICHARD D. BRYANT and JOHN GWYN FLEMING, Cincinnati.

Discussion to be opened by HENRY LYNDE WOODWARD, Cincinnati.

SYMPOSIUM ON POSTPITUITARY PREPARATIONS IN OBSTETRICS

(All papers in the symposium will be given before there is any discussion)

Uterine Response to Posterior Pituitary at Term: Physiologic Considerations (Lantern Demonstration).

SAMUEL R. M. REYNOLDS, Brooklyn, and DOUGLAS POWER MURPHY, Philadelphia.

Discussion to be opened by RICHARD TORPIN, Augusta, Ga., and SPRAGUE H. GARDINER, Baltimore.

Should Solution of Posterior Pituitary Be Used in the First and Second Stages of Labor?

JOHN A. SHARKEY, Philadelphia.

Discussion to be opened by ALBERT B. DAVIS, Camden, N. J.

The Abuse of Solution of Posterior Pituitary During Labor (Lantern Demonstration).

GEORGE F. PENDLETON, Kansas City, Mo.

Discussion to be opened by JAMES K. QUIGLEY, Rochester, N. Y.

The Responsibilities of the Newborn Service from the Standpoint of the Pediatrician. JULIUS H. HESS, Chicago.

Vitamin K in the Prevention and Treatment of Prothrombin Deficiency and Associated Hemorrhage in the Newborn (Lantern Demonstration).

W. W. WADDELL JR., Charlottesville, Va.

SECTION ON PHARMACOLOGY AND THERAPEUTICS

MEETS IN MUSIC ROOM OF THE BILTMORE

OFFICERS OF SECTION

Chairman—IRVING S. WRIGHT, New York.

Vice Chairman—C. M. GRUBER, Philadelphia.

Secretary—EDGAR V. ALLEN, Rochester, Minn.

Executive Committee—RUSSELL L. HADEN, Cleveland; ERWIN E. NELSON, New Orleans; IRVING S. WRIGHT, New York.

Wednesday, June 12—9 a. m.

The Effect of Mersalyl (Salyrgan) on Plasma and Blood Volume (Lantern Demonstration).

VERNE W. SWIGERT, Evanston, Ill., and REGINALD FITZ, Boston.

Discussion to be opened by LEONARD G. ROWNTREE, Philadelphia, and MAURICE BRUGER, New York.

Clinical and Experimental Studies on Paraldehyde (Lantern Demonstration).

MEYER BODANSKY, J. L. JINKINS, H. LEVINE and A. J. GILBERT, Galveston, Texas.

Discussion to be opened by S. BERNARD WORTIS and NORMAN H. JOLLIFFE, New York.

A Review of the More Recent Field and Laboratory Studies in Chronic Selenium Poisoning (Lantern Demonstration).

M. I. SMITH, Washington, D. C.

Discussion to be opened by J. H. STERNER, Rochester, N. Y., and H. O. CALVERT, Washington, D. C.

Studies of the Principle in Liver Effective in Pernicious Anemia: VI. Recent Advances in the Purification of Active Substances (Lantern Demonstration).

BERNARD M. JACOBSON and Y. SUBBAROW, Boston.

Discussion to be opened by RANDOLPH WEST, New York, and GEORGE R. MINOT, Boston.

An Experimental and Clinical Evaluation of the Synthetic Estrogen Stilbestrol (Lantern Demonstration).

CHARLES MAZER, S. LEON ISRAEL and ELKIN RAVETZ, Philadelphia.

Discussion to be opened by THEODORE NEUSTAEDTER and RAPHAEL KURZROK, New York, and L. M. RANDALL, Rochester, Minn.

The Role of Chlorides in the Treatment of Alkalosis (Lantern Demonstration).

JOSEPH B. KIRSNER and WALTER L. PALMER, Chicago.

Discussion to be opened by DANA W. ATCHLEY, New York.

Thursday, June 13—9 a. m.

Election of Officers

Chairman's Address: Social Significance and Ultimate Objective of the Treatment of Arteriosclerosis Obliterans (Lantern Demonstration). IRVING S. WRIGHT, New York.

The Treatment of Angina Pectoris by Pancreatic Tissue Extract.

JAMES G. CARR, ALEXANDER SANDERS and GILBERT H. MARQUARDT, Chicago.

Discussion to be opened by A. WILBUR DURYEE, New York.

The Spontaneous Hypoglycemias: The Importance of Etiology in Determining Treatment (Lantern Demonstration).

JEROME W. CONN, Ann Arbor, Mich.

Discussion to be opened by HERBERT POLLACK, New York, and E. J. KEPLER, Rochester, Minn.

The Treatment of Orthostatic Hypotension and Orthostatic Tachycardia (Lantern Demonstration).

A. R. MACLEAN, Rochester, Minn.

Discussion to be opened by SOMA WEISS, Boston.

A Note of Optimism in the Treatment of the Patient with Chronic Leukemia (Lantern Demonstration).

WILLIAM P. MURPHY, Boston.

Discussion to be opened by PAUL REZNIKOFF and CLAUDE E. FORKNER, New York.

The Use of Aluminum Hydroxide in the Treatment of Peptic Ulcer (Lantern Demonstration).

E. N. COLLINS, Cleveland; C. P. PRITCHETT, Columbus, Ohio, and H. R. ROSSMILLER, Cleveland.

Discussion to be opened by JAMES FLEXNER, New York.

Sulfathiazole and Sulfapyridine Therapy in Pneumonia (Lantern Demonstration).

HARRISON F. FLIPPIN, LEON SCHWARTZ and JOHN G. REINHOLD, Philadelphia.

Discussion to be opened by HERBERT K. ENSWORTH, New York, and ELMER H. LOUGHLIN, Brooklyn.

Friday, June 14—9 a. m.

JOINT MEETING WITH SECTION ON PRACTICE OF MEDICINE, BALLROOM OF THE BILTMORE

The Effects of Intravenous Solutions on Patients With and Without Cardiovascular Defects (Lantern Demonstration).

FRANCIS D. MURPHY, Milwaukee; HOWARD L. CORRELL, Wauwatosa, Wis., and JOHN C. GRILL, Milwaukee.

Discussion to be opened by N. C. GILBERT, Chicago, and IRVINE H. PAGE, Indianapolis.

The Antipressor Action of Renal Extracts (Lantern Demonstration).

ARTHUR GROLLMAN, Baltimore, and J. R. WILLIAMS JR. and T. R. HARRISON, Nashville, Tenn.

Discussion to be opened by J. MURRAY STEELE, New York; M. C. WINTERNITZ, New Haven, Conn., and EDGAR V. ALLEN, Rochester, Minn.

Treatment of Tetanus (Lantern Demonstration).

HYMAN I. VENER and ALBERT G. BOWER, Los Angeles.

Discussion to be opened by WILLARD J. STONE, Pasadena, Calif., and RICHARD H. MILLER, Boston.

Long-Term Results in the Treatment of Early Syphilis (Lantern Demonstration).

PAUL PADGET, Baltimore.

Discussion to be opened by JOSEPH EARLE MOORE, Baltimore, and R. A. VONDERLEHR, Washington, D. C.

Concerning the Mode of Action of Sulfanilamide (Lantern Demonstration).

PHILIP A. SHAFFER, St. Louis.

The Treatment of Septicemia: Results Before and Since the Advent of Sulfamido Compounds (Lantern Demonstration).

WALLACE E. HERRELL and ALEX E. BROWN, Rochester, Minn.

Discussion on papers of Dr. SHAFFER and Drs. HERRELL and BROWN to be opened by PERRIN H. LONG, Baltimore, and WALLACE M. YATER, Washington, D. C.

SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN MUSIC ROOM OF THE BILTMORE

OFFICERS OF SECTION

Chairman—FRANK W. HARTMAN, Detroit.

Vice Chairman—CARL J. WIGGERS, Cleveland.

Secretary—J. J. MOORE, Chicago.

Executive Committee—ROY R. KRACKE, Emory University, Ga.; M. B. VISSCHER, Minneapolis; FRANK W. HARTMAN, Detroit.

Wednesday, June 12—2 p. m.

Fundamental Principles in the Adjustment Reactions of the Organism to Anoxia (Lantern Demonstration).

ERNST GELLHORN, Chicago.

Cardiac Adaptations During Anoxia.

CARL J. WIGGERS, Cleveland.

Anoxia and the Treatment of Schizophrenia (Lantern and Motion Picture Demonstration).

H. E. HIMWICH, Albany, N. Y.

Anoxia from the Anesthetist's Point of View (Lantern Demonstration).
RALPH M. WATERS, Madison, Wis.

A Study of Alpha-Lobeline, Metrazol and Nikethamide in Experimental Anoxia (Lantern Demonstration).
NICHOLSON J. EASTMAN, Baltimore.

Chairman's Address: Pathology in Anoxia.
FRANK W. HARTMAN, Detroit.

Thursday, June 13—2 p. m.

Capillary Strength and Permeability in Rheumatoid Arthritis (Lantern Demonstration).
J. F. RINEHART, San Francisco.

Cancer of the Larynx: Relation Between Gross Anatomy, Microscopic Structure and Radiosensitivity (Lantern Demonstration).
MAX CUTLER, Chicago.

Effects of Tissue Extracts on Normal and Nephrectomized Dogs (Lantern Demonstration).
M. C. WINTERNITZ, New Haven, Conn.

Experimental Lesions of the Aorta Simulating Arteriosclerosis (Lantern Demonstration).
DON C. SUTTON and JOHN ASHWORTH, Chicago.

The Pathology of Brunner's Glands (Lantern Demonstration).
H. E. ROBERTSON, Rochester, Minn.

The Effect of Pregnancy on Experimental Hypertension (Lantern Demonstration).
ERNEST W. PAGE, Berkeley, Calif.; HENRY S. PATTON, Oakland, Calif., and ERIC OGDEN, Berkeley, Calif.

Compensatory Atrophy of Endocrine Glands.
HANS SELYE, Montreal, Canada.

Friday, June 14—2 p. m.

Election of Officers
Tuberculo-protein Desensitization and Tuberculosis (Lantern Demonstration).
H. J. CORPER and A. P. DAMEROW, Denver.

The Use of Aluminum Phosphate in the Therapy of Peptic Ulcer (Lantern Demonstration).
A. C. IVY, G. B. FAULEY and A. J. ATKINSON, Chicago.

Studies on Preserved Human Blood: VI. Reactions from Transfusion (Lantern Demonstration).
ELMER L. DE GOWIN and ROBERT C. HARDIN, Iowa City.

Human Serum Transfusions (Lantern Demonstration).
SIDNEY O. LEVINSON, FRANK E. RUBOVITS JR. and HEINRICH NECHIELES, Chicago.

The Influence of the Liver on the Utilization of Vitamin K (Lantern Demonstration).
JESSE L. BOLLMAN, Rochester, Minn.

The Body Economy of Vitamin C in Health and Disease with Special Studies in Tuberculosis (Lantern Demonstration).
HENRY C. SWEANY and CHARLOTTE LOUISE CLANCY, Chicago, and MOLLY H. RADFORD, Santa Fe, N. M.

Peritoneal Exudate: A Guide for the Diagnosis and Prognosis of Peritoneal Conditions (Lantern Demonstration).
BERNARD STEINBERG, Toledo, Ohio.

SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN BALLROOM OF THE DILMORE

OFFICERS OF SECTION

Chairman—PAUL C. BUCY, Chicago.

Vice Chairman—JOHN F. FULTON, New Haven, Conn.

Secretary—J. M. NIELSEN, Los Angeles.

Executive Committee—SAMUEL D. INGHAM, Los Angeles; FRANCIS C. GRANT, Philadelphia; PAUL C. BUCY, Chicago.

Wednesday, June 12—9 a. m.

Psychotic and Somatic Interrelations (Lantern Demonstration).
WILLIAM F. PETERSEN, Chicago, and HANS H. REESE, Madison, Wis.

Discussion to be opened by LLOYD H. ZIEGLER, Wauwatosa, Wis., and WENDELL S. MUNCIE, Baltimore.

Sequelae of Severe Disease of the Abdominal Viscera with Special Reference to Psychoneurosis and Imbalance of the Autonomic Nervous System (Lantern Demonstration).
A. R. VONDERAHE, Cincinnati.

Discussion to be opened by LEO ALEXANDER, Boston, and WALTER FREEMAN, Washington, D. C.

Instinctive Motivations of Suicide (Lantern Demonstration).
SAMUEL D. INGHAM, Los Angeles.

Discussion to be opened by A. A. BRILL, New York, and TITUS H. HARRIS, Galveston, Texas.

Electro-Encephalographic Studies of Head Injury (Lantern Demonstration).
HERBERT JASPER, JOHN KERSHMAN and A. R. ELVIDGE, Montreal, Canada.

Discussion to be opened by HALLOWELL DAVIS, Boston, and TRACY J. PUTNAM, New York.

Acute Ascending Paralysis, with Clinical and Pathologic Report on Cases with Fatal Termination (Lantern Demonstration).
RUSSELL N. DEJONG, Ann Arbor, Mich.

Discussion to be opened by LOUIS CASAMAJOR, New York, and PETER BASOE, Chicago.

Polyradiculoneuritis (Guillain-Barré Syndrome) (Lantern and Motion Picture Demonstration).
PAUL H. GARVEY, Rochester, N. Y.

Discussion to be opened by A. M. ORNSTEEN, Philadelphia, and FREDERICK P. MOERSCH, Rochester, Minn.

Thursday, June 13—9 a. m.

Election of Officers

Primary and Secondary Melanoma of the Central Nervous System (Lantern Demonstration).
FREDERICK P. MOERSCH, Rochester, Minn.

Discussion to be opened by S. BERNARD WORTIS, New York, and CYRIL B. COURVILLE, Los Angeles.

The Nervous System in Carbon Disulfide Poisoning in Animals and Man (Lantern and Motion Picture Demonstration).
BERNARD J. ALPERS and F. H. LEWY, Philadelphia.

Discussion to be opened by S. T. GORDY, Philadelphia, and ARMANDO FERRARO, New York.

Chairman's Address: Surgical Neurology and Biology.
PAUL C. BUCY, Chicago.

The Significance of Trophic Lesions in the Trigeminal Area (Lantern Demonstration).
LOUIS J. KARNOSH, Cleveland, and ROGER F. SCHERR, Camarillo, Calif.

Discussion to be opened by MAX MINOR PEET, Ann Arbor, Mich., and A. EARL WALKER, Chicago.

The Control of Smooth Muscle by the Nervous System (Lantern Demonstration).
ORTHELLO R. LANGWORTHY and FREDERICK H. HESSER, Baltimore.

Discussion to be opened by J. W. WATTS, Washington, D. C., and LLOYD G. LEWIS, Baltimore.

The Neurologic Significance of Platybasia.
ERIC OLDBERG and W. A. GUSTAFSON, Chicago.

Discussion to be opened by TRACY J. PUTNAM, New York, and LEO M. DAVIDOFF, Brooklyn.

Friday, June 14—9 a. m.

JOINT MEETING WITH SECTION ON OPHTHALMOLOGY, GRAND BALLROOM OF THE ROOSEVELT

Results Following the Intracranial Approach for Orbital Tumors (Lantern Demonstration).
WALTER E. DANDY, Baltimore.

Discussion to be opened by ARNOLD KNAPP, New York.

Sparing and Nonsparing of "Macular" Vision Associated with Occipital Lobectomy in Man (Lantern Demonstration).
WARD C. HALSTEAD and A. EARL WALKER, Chicago.

Discussion to be opened by WILDER G. PENTFIELD, Montreal, Canada, and P. J. LEINFELDER, Iowa City.

Comparison of Differential Diagnosis of Brain Lesions by Visual Fields, Encephalography and Ventriculography (Lantern Demonstration).
ALBERT D. REIDEMANN, Cleveland.
Discussion to be opened by JOHN N. EVANS, Brooklyn.

Primary Pituitary Adenomas and the Syndrome of the Cavernous Sinus (Lantern Demonstration).

FRANCIS H. ADLER, Philadelphia.

Discussion to be opened by WILLIAM J. GERMAN JR., New Haven, Conn.

Prechiasmal Syndrome Produced by Chronic Local Arachnoiditis (Lantern Demonstration).

W. IVAN LILLIE, Philadelphia.

Discussion to be opened by TEMPLE S. FAY, Philadelphia.

The Myopathy and Etiology of Exophthalmos Experimentally Produced by Extracts of the Anterior Pituitary.

ROBERT B. AIRD and HOWARD C. NAFFZIGER, San Francisco.

Discussion to be opened by DAVID MARINE, New York, and HARRY B. FRIEDGOOD, Boston.

SECTION ON DERMATOLOGY AND SYPHILOLOGY

MEETS IN WEST BALLROOM OF THE COMMODORE

OFFICERS OF SECTION

Chairman—JOHN G. DOWNING, Boston.

Vice Chairman—RICHARD S. WEISS, St. Louis.

Secretary—C. F. LEHMANN, San Antonio, Texas.

Executive Committee—JOSEPH V. KLAUDER, Philadelphia; BEDFORD STELMIRE, Dallas, Texas; JOHN G. DOWNING, Boston.

Wednesday, June 12—9 a. m.

Chairman's Address: Dermatitis (Lantern Demonstration).

JOHN G. DOWNING, Boston.

Dermatitis of Hands in Housewives: The Role of Soaps in Its Etiology and Methods for Its Prevention (Lantern Demonstration).

JAMES W. JORDON and EARL D. OSBORNE, Buffalo.

Discussion to be opened by JOSEPH V. KLAUDER, Philadelphia.

The Personality Factor in the Psychoneurogenous Reactions of the Skin (Lantern Demonstration).

JOHN H. STOKES, Philadelphia.

Discussion to be opened by HARRY C. SOLOMON, Boston.

Dermatitis Herpetiformis: Influence of Age Factors and a Study of Pathologic Data with Special Reference to Eosinophils (Lantern Demonstration).

M. H. GOODMAN, Baltimore.

Discussion to be opened by ISADORE ROSEN, New York.

Staphylococcic Impetigo Contagiosa (Lantern Demonstration).

STEPHAN EPSTEIN, Marshfield, Wis.

Discussion to be opened by MARION B. SULZBERGER, New York.

Psoriasis (Lantern Demonstration).

JOHN F. MADDEN, St. Paul.

Discussion to be opened by DONALD M. PILLSBURY, Philadelphia.

A Clinical and Pathologic Study of Oral Disease, Based on 2,300 Consecutive Cases (Lantern Demonstration).

FRANCIS P. MCCARTHY, Boston.

Discussion to be opened by FRANK J. EICHENLAUB, Washington, D. C.

Thursday, June 13—9 a. m.

Acetylgyco-Arsenobenzene in the Treatment of Syphilis: A Clinical Study (Lantern Demonstration).

WILLIAM H. GUY, BERNHARD A. GOLDMANN, GEORGE P. GANNON and JACOB SLOAN, Pittsburgh.

Discussion to be opened by HARRY M. ROBINSON, Baltimore.

The Use of Bismuth Injections to Control the Course of Therapeutic Malaria (Lantern Demonstration).

HAROLD N. COLE, GERARD A. DEOREO, JAMES R. DRIVER and HERBERT H. JOHNSON JR., Cleveland, and WALTER F. SCHWARTZ, Pasadena, Calif.

Discussion to be opened by PAUL A. O'LEARY, Rochester, Minn.

The Use of Bismuth Compounds in Syphilotherapy (Lantern Demonstration).

EDMUND N. WALSH, Chicago.

Discussion to be opened by GEORGE V. KULCHAR, San Francisco.

The Aschheim-Zondek Test in Cutaneous and Mammary Malignant Growths (Lantern Demonstration).

ALBERT STRICKLER, Philadelphia.

Discussion to be opened by MILTON H. COHEN, York, Pa.

Pseudo-Epithelial Hyperplasia (Lantern Demonstration).

LOUIE H. WINER, Minneapolis.

Discussion to be opened by HAMILTON MONTGOMERY, Rochester, Minn.

The Relationship Between Epithelioma Adenoides Cysticum, Tricho-Epithelioma and Basal Cell Cancer as Illuminated by Histologic Studies of Multiple Benign Cystic Epithelioma.

HERBERT L. TRAENKLE, Buffalo.

Discussion to be opened by FRANCIS A. ELLIS, Baltimore.

Multiple Benign Cystic Epithelioma: Ten Cases in One Family (Lantern Demonstration).

HYMAN J. GOLDMAN, St. Louis.

Discussion to be opened by FRED D. WEIDMAN, Philadelphia.

Friday, June 14—9 a. m.

Election of Officers

Chromoblastomycosis: Report of a Case with Early Diagnosis and Recovery After Iodide Medication (Lantern Demonstration).

C. W. EMMONS, Washington, D. C., and W. HOWARD HAILEY and HUGH HAILEY, Atlanta, Ga.

Discussion to be opened by JOSEPH G. HOPKINS, New York.

The Blastomycosis-like Infections (Lantern Demonstration).

LESLIE M. SMITH, El Paso, Texas.

Discussion to be opened by GEORGE M. LEWIS, New York.

Milkers' Nodules (Lantern Demonstration).

F. T. BECKER, Duluth, Minn.

Discussion to be opened by M. E. OBERMAYER, Chicago.

Cutaneous Manifestation from Tobacco with Special Reference to Arsenical Exfoliative Dermatitis (Lantern Demonstration).

E. E. BARKSDALE, Danville, Va.

Discussion to be opened by DUDLEY C. SMITH, Charlottesville, Va.

Adrenal Cortex Extract in the Treatment of Bromide Eruption and Bromide Intoxication (Lantern Demonstration).

CHARLES P. BONDURANT, Oklahoma City.

Discussion to be opened by M. T. VAN STUDDIFORD, New Orleans, and EUGENE F. TRAUB, New York.

SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

MEETS IN HENDRIK HUDSON ROOM OF THE JOSEVELT

OFFICERS OF SECTION

Chairman—HAROLD S. DIEHL, Minneapolis.

Vice Chairman—CLARENCE D. SELBY, Detroit.

Secretary—W. A. SAWYER, Rochester, N. Y.

Executive Committee—ROBERT T. LEGGE, Berkeley, Calif.; I. C. RIGGIN, Richmond, Va.; HAROLD S. DIEHL, Minneapolis.

Wednesday, June 12—2 p. m.

May Workers with Coronary Disease and Hypertension Be Employed Under Medical Supervision (Lantern Demonstration)?

ARTHUR M. MASTER, SIMON DACK and HARRY L. JAFFE, New York.

Should Coronary Disease and Hypertension Be a Cause for Rejection in Industry?

H. M. F. BEHNEMAN, San Francisco.

An Evaluation of Disability Criteria in Pulmonary Diseases of Industry (Lantern Demonstration).

EDGAR MAYER, New York.

Röntgenologic Group Examinations for Pulmonary Tuberculosis in Negroes in Chicago (Lantern Demonstration).

ROBERT G. BLOCH, Chicago.

A Four Year Analysis of Silicosis: Medical Experience of the New York State Department of Labor (Lantern Demonstration).

LEONARD GREENBURG, New York.

Thursday, June 13—2 p. m.

- Better Patients Through Better Exhibits.
HOMER N. CALVER, New York.
A Program for Industrial Health in State and County Medical Societies (Lantern Demonstration).
CHARLES FRANCIS LONG, Philadelphia.
Opportunities for Physicians in Industry.
THOMAS L. SHIPMAN, Lynn, Mass.
Preventive Medicine. A. GRANT FLEMING, Montreal, Canada.
Applied Epidemiology in the General Hospital.
M. E. BARNES, Iowa City.

Friday, June 14—2 p. m.

- Election of Officers
The Virus of Poliomyelitis in Sewage.
JOHN R. PAUL and JAMES D. TRASK, New Haven, Conn.
The Portal of Entry Problem in Poliomyelitis (Lantern Demonstration).
HOWARD A. HOWE, Baltimore.
The Frequency of Poliomyelitis in Pregnancy (Lantern Demonstration).
W. LLOYD AYCOCK, Boston.
Mental Hygiene Aspect of Traffic Accidents.
LOWELL S. SELLING, Detroit.
Effective Temperature Scale: A Measure of Human Comfort in Environmental Temperature (Lantern Demonstration).
MURRAY B. FERDERBER, Pittsburgh.

SECTION ON UROLOGY

MEETS IN WEST BALLROOM OF THE COMMODORE

OFFICERS OF SECTION

- Chairman—FREDERIC E. B. FOLEY, St. Paul.
Vice Chairman—MEREDITH F. CAMPBELL, New York.
Secretary—VINCENT J. O'CONNOR, Chicago.
Executive Committee—ALBERT J. SCHOLL, Los Angeles; WILLIAM P. HERBST, Washington, D. C.; FREDERIC E. B. FOLEY, St. Paul.

Wednesday, June 12—2 p. m.

- Hypertension and the Surgical Kidney (Lantern Demonstration).
WILLIAM F. BRAASCH, Rochester, Minn.
A Combined Clinical and Pathologic Study of Surgical Specimens in 150 Consecutive Patients, in Relation to Vascular Nephritis and Blood Pressure (Lantern Demonstration).
E. GRANVILLE CRABTREE and NATHAN CHASET, Boston.
Discussion to be opened by ROY J. HOLMES, Miami, Fla.; EARL E. EWERT, Boston, and GEORGE W. FISH, New York.
The Cutaneous Diagnosis of Gonococcal Infections: A Further Report (Lantern Demonstration).
BUBB C. CORBUS and BUDN C. CORBUS JR., Chicago.
Discussion to be opened by MICHAEL WISHENGRAD, New York.
Chemotherapy in the Treatment of Gonorrhea.
RUSSELL D. HERROLD, Chicago.
Present Status of Chemotherapy in Nonspecific Infections of the Urinary Tract (Lantern Demonstration).
EDWIN P. ALVEA, Durham, N. C.
The Clinical Experience with Sulfamethylthiazole in the Treatment of Staphylococcal Infections (Lantern Demonstration).
GRAYSON L. CARROLL, St. Louis.
Discussion to be opened by CHARLES A. W. UHLE, Philadelphia, and V. ROGERS DEANIN, St. Louis.

Thursday, June 13—2 p. m.

- Chairman's Address: Surgical Treatment of "Horseshoe Kidney" (Lantern Demonstration).
FREDERIC E. B. FOLEY, St. Paul.
Pathology and Surgical Treatment of Vesical Neck Obstruction in Women (Lantern and Motion Picture Demonstration).
HUGH H. YOUNG, Baltimore.
Primary Tumors of the Ureter (Lantern Demonstration).
HARTWICK M. STANG and AMBROSE J. HERTZOG, Eau Claire, Wis.
Primary Carcinoma of the Ureter (Lantern Demonstration).
VIRGIL S. COUNSELLER and EDWARD N. COOK, Rochester, Minn.
Injury of the Kidneys with Special Reference to Early and Accurate Diagnosis Through Pyelography (Lantern Demonstration).
JAMES C. SARGENT, Milwaukee.
The Technic of Perineal Prostatectomy (Lantern and Motion Picture Demonstration).
EDWIN DAVIS, Omaha.

Friday, June 14—2 p. m.

- Election of Officers
Sterility in the Male: Diagnosis and Treatment (Lantern Demonstration).
HENRY A. R. KREUTZMANN, San Francisco.
The Nature of Human Infertility.
SAMUEL R. MEAKER and SAMUEL N. VOSE, Boston.
Testicular Biopsy: Its Value in Male Sterility (Lantern Demonstration).
CHARLES W. CHARNY, Philadelphia.
A Further Report on the Operative Treatment of Obstructive Lesions in the Testes as a Cause of Sterility in the Male (Lantern Demonstration).
FRANCIS R. HAGNER, Washington, D. C.
The Treatment of Eunuchoidism by Pellet Implantation of Methyl Testosterone. BERNARD STRAUSS, San Francisco.

SECTION ON ORTHOPEDIC SURGERY

MEETS IN BALLROOM OF THE BILTMORE

OFFICERS OF SECTION

- Chairman—ROBERT V. FUNSTEN, Charlottesville, Va.
Vice Chairman—J. ALBERT KEY, St. Louis.
Secretary—GUY A. CALDWELL, New Orleans.
Executive Committee—JOHN DUNLOP, Pasadena, Calif.; OSCAR L. MILLER, Charlotte, N. C.; ROBERT V. FUNSTEN, Charlottesville, Va.

Wednesday, June 12—2 p. m.

- Fractures of the Neck of the Femur in Children (Lantern Demonstration).
WILLIAM B. CARRELL JR. and BRANDON CARRELL, Dallas, Texas.
Discussion to be opened by MARK H. ROGERS, Boston; JAMES A. DICKSON, Cleveland, and FRANCIS M. MCKEEVER, Los Angeles.
A Program for the Treatment of Compound Fractures (Lantern Demonstration).
JAMES E. M. THOMSON, Lincoln, Neb.
Discussion to be opened by ROBERT W. JOHNSON JR., Baltimore; DONALD E. MCKENNA, Brooklyn, and MYRON O. HENRY, Minneapolis.
External or Internal Fixation for Intertrochanteric Fractures (Lantern Demonstration).
G. MOSSER TAYLOR and ALONZO J. NEUFELD, Los Angeles.
Discussion to be opened by FRANK M. HAND, Washington, D. C.; ARMITAGE WHITMAN, New York, and ABRAHAM M. RECHTMAN, Philadelphia.
Spontaneous Reduction of Cervical Spine Dislocation in Children (Lantern Demonstration).
JESSE T. NICHOLSON, Philadelphia.
Discussion to be opened by WILLIAM H. VON LACKUM and BARBARA B. STINSON, New York, and HAROLD E. CROWL, Los Angeles.
Diaphysectomy for Chronic Osteomyelitis of the Fibula (Lantern Demonstration).
CHARLES R. ROUNTREE, Oklahoma City.
Discussion to be opened by H. THEODORE SIMON, New Orleans, and MATHER CLEVELAND and JOHN R. COHN, New York.
The Use of Double Wire Traction in the Treatment of Fractures of the Shaft of the Femur (Lantern and Motion Picture Demonstration).
HAROLD A. SWART, Charleston, W. Va.
Discussion to be opened by GEORGE W. VAN GORDER, Boston; CLAY RAY MURRAY, New York, and ROGER ANDERSON, Seattle.

Thursday, June 13—2 p. m.

- Election of Officers
Progressive Pseudohypertrophic Muscular Dystrophy: A New Regimen of Treatment (Lantern Demonstration).
HIRA E. BRANCH, Detroit.
Discussion to be opened by JOSEPH B. L'EPISCORO, Brooklyn; JOSEPH A. FREIBERG, Cincinnati, and RALPH K. GIORNLEY, Rochester, Minn.
Early Operation (Spine Fusion) in Unstable Lumbosacral Joints (Lantern Demonstration).
GILBERT E. HAGGART, Boston.
Discussion to be opened by ALLEN F. VOSHELL, Baltimore; MURRAY S. DANFORTH, Providence, R. I., and FREDERICK A. JOSTES, St. Louis.

Chairman's Address: Problems in Fractures of the Lower Third of the Femur (Lantern Demonstration).

ROBERT V. FUNSTEN, Charlottesville, Va.

Extra-Articular Osteosynthesis for Nonunion of Fracture of Neck of the Femur (Lantern Demonstration).

MELVIN S. HENDERSON, Rochester, Minn.

Discussion to be opened by BENJAMIN P. FARRELL, New York; WILLIS C. CAMPBELL, Memphis, Tenn., and MARIUS N. SMITH-PETERSEN, Boston.

Surgical Closure of Osseous Tuberculous Abscesses (Lantern Demonstration).

FRANK G. MURPHY, Chicago.

Discussion to be opened by W. EUGENE WOLCOTT, Des Moines, Iowa; ROBERT J. COOK, New Haven, Conn., and EARL E. VAN DERWERKER, New York.

An Improved Technic for Removal of the Scmilunar Cartilage and the Postoperative Treatment (Lantern Demonstration).

HAROLD R. BOHLMAN, Baltimore.

Discussion to be opened by ALAN DEFOREST SMITH, New York; PHILIP LEWIN, Chicago, and WILLIAM R. MACAUSLAND, Boston.

Friday, June 14—9 a. m.

JOINT MEETING WITH SECTION ON SURGERY, GENERAL AND ABDOMINAL, GRAND BALLROOM OF THE COMMODORE

Automobile Accidents in a Rural Arca Traversed by a Transcontinental Highway (Lantern Demonstration).

JOHN H. POWERS, Cooperstown, N. Y.

Discussion to be opened by PHILIP D. WILSON, New York.

Fracture of the Ulna with Dislocation of the Head of the Radius (Monteggia Fracture) (Lantern Demonstration).

JAMES S. SPEED and HAROLD B. BOYD, Memphis, Tenn. Discussion to be opened by HERMAN F. JOHNSON, Omaha, and BENJAMIN FRANKLIN BUZBY, Camden, N. J.

Head Injuries (Lantern Demonstration).

HAROLD C. VORIS, ADRIEN VERBRUGGHE and JERRY J. KEARNS, Chicago.

Discussion to be opened by S. BERNARD WORTIS, New York, and DONALD MUNRO, Boston.

Indications and Technic for Operative Treatment of the External Tibial Condyle (Bumper Fracture) (Lantern Demonstration).

JOSEPH S. BARR, Boston.

Discussion to be opened by CARL E. BADGLEY, Ann Arbor, Mich.; EARL D. MCBRIDE, Oklahoma City, and HAROLD R. CONN, Akron, Ohio.

The Treatment of Compound Fractures.

HARRY C. BLAIR, Portland, Ore.

Complicated Pott's Fractures Requiring Open Reduction (Lantern Demonstration).

RUFUS H. ALLDREDGE, New Orleans.

Discussion to be opened by PHILIP D. WILSON, New York; FRANK D. DICKSON, Kansas City, Mo., and GEORGE O. EATON, Baltimore.

SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

MEETS IN HENDRIK HUDSON ROOM OF THE ROOSEVELT

OFFICERS OF SECTION

Chairman—A. H. AARON, Buffalo.

Vice Chairman—FRANK C. YEOMANS, New York.

Secretary—J. A. BARGEN, Rochester, Minn.

Executive Committee—HENRY L. BOCKUS, Philadelphia; DEUCUM C. MCKENNEY, Buffalo; A. H. AARON, Buffalo.

A luncheon will be held under the auspices of the section on Wednesday, June 12, 12:30 p. m., in the Small Ballroom of The Roosevelt.

Wednesday, June 12—9 a. m.

THE STOMACH AND DUODENUM

Interpretation of Gastroscopic Observations in Terms of Mucosal Changes: Histologic Study (Lantern Demonstration).

ABRAHAM J. GITLITZ, Englewood, N. J., and HENRY H. LERNER, Boston.

Clinical and Therapeutic Implications of Gastritis (Lantern Demonstration).

CHESTER M. JONES, Boston.

Discussion to be opened by BURRILL B. CROHN, New York; HERMAN J. MOERSCH, Rochester, Minn.; ALFRED S. WHITE and ALLAN L. COHN, San Francisco, and JULIAN M. RUFFIN, Durham, N. C.

The Night Secretion of Free Hydrochloric Acid in the Stomach (Lantern Demonstration). FRANK C. VAL DEZ, Chicago.

Antacids: Their Reaction by Titration and Within the Human Stomach (Lantern Demonstration).

HERBERT C. BREUHAUS and JAMES B. EYERLY, Chicago.

Discussion to be opened by MOSES EINHORN, New York; HARRY GAUSS, Denver, and DAVID J. SANDWEISS, Detroit.

Neurogenic Factors in Production of Peptic Ulcer (Lantern Demonstration).

RUSSELL S. BOLES, HELENA E. RIGGS and JOHN O. GRIFFITHS, Philadelphia.

The Prognostic Significance of the Blood Urea Nitrogen Following Hematemesis or Melena (Lantern Demonstration).

LEON SCHIFF, RICHARD J. STEVENS and HAROLD K. MOSS, Cincinnati.

Surgery in Peptic Ulcers of Infants and Children (Lantern Demonstration).

CLARENCE E. BIRD, Providence, R. I.; MARGARET A. LIMPER, Louisville, Ky., and JACOB M. MAYER, Mayfield, Ky.

Fatal Hemorrhage from Peptic Ulcer (Lantern Demonstration). JOHN M. BLACKFORD, Seattle.

Discussion to be opened by WALTER L. PALMER, Chicago; SIDNEY LEIBOWITZ and JULIUS CHASNOFF, New York; IRVING GRAY, Brooklyn; BURRILL B. CROHN, New York, and ARTHUR W. ALLEN, Boston.

Thursday, June 13—9 a. m.

THE INTESTINE

Primary Jejunal Pathology (Lantern Demonstration).

DONOVAN C. BROWNE and GEORGE GORDON MCHARDY, New Orleans.

Discussion to be opened by DAVID ADLERSBERG, New York.

The Structural Significance of the Ileocecal Valve (Lantern Demonstration).

E. G. WAKEFIELD and M. T. FRIEDEL, Rochester, Minn.

Discussion to be opened by EARNEST H. GAITHER, Baltimore.

A Clinical Entity Associated with the So-Called Nonpathogenic Ameba (Lantern Demonstration).

MAURICE M. ROTHMAN and HARRY J. EPSTEIN, Philadelphia.

Discussion to be opened by ASHER WINKELSTEIN, New York.

Carcinoma of the Colon: Early Diagnosis with Double Contrast Enema (Lantern Demonstration).

JACOB GERSHON-COHEN and HARRY SHAY, Philadelphia.

Discussion to be opened by C. ALLEN GOOD JR., Rochester, Minn., and E. C. KOENIG, Buffalo.

Gastrointestinal Complications in Pulmonary Tuberculosis (Lantern Demonstration).

LEO L. HARDT and SEYMOUR J. COHEN, Chicago.

Discussion to be opened by JOSEPH FELSEN, New York.

End Results in Radical Gastrointestinal Surgery as Seen by the Gastro-Enterologist (Lantern Demonstration).

SARA M. JORDAN, Boston.

Discussion to be opened by JOHN G. MATEER, Detroit, and A. H. AARON, Buffalo.

Anorectal Operative Procedures with Special Reference to the Avoidance of Pain, Based on a Series of 1,000 Cases (Lantern Demonstration).

HARRY E. BACON, Philadelphia.

Discussion to be opened by EMIL GRANET, New York; HENRY RAILE, Salt Lake City; CURTICE ROSSER, Dallas, Texas, and MALCOLM R. HILL, Los Angeles.

Megacolon (Lantern Demonstration).

HORACE W. SOPER, St. Louis.

Discussion to be opened by SARA M. JORDAN, Boston, and J. ARNOLD BARGEN, Rochester, Minn.

Friday, June 14—9 a. m.

Election of Officers

NEWER VITAMIN STUDIES

Vitamin Deficiencies in Diarrheal States (Lantern Demonstration).

WILLIAM BENNETT BEAN and TOM DOUGLAS SPIES, Cincinnati.

The Clinical Value of Vitamin K (Lantern Demonstration).
GARNETT CHENEY, San Francisco.

Discussion to be opened by THOMAS T. MACKIE, New York, and DONALD T. CHAMBERLIN, Boston.

THE DIGESTIVE SECRETORY SYSTEMS

The Use and Significance of Tests of Pancreatic Function (Lantern Demonstration).

MANDRED W. COMFORT, Rochester, Minn.

Discussion to be opened by JOSEPH S. DIAMOND, New York.

The Clinical Significance of Salivary, Gastric and Pancreatic Secretion in Old Age (Lantern Demonstration).

JACOB MEYER, Chicago.

Discussion to be opened by A. C. IVY, Chicago, and EDWARD S. EMERY JR., Boston.

The Management of Gallbladder Disease Based on a Cholecystographic Classification.

MAURICE FELDMAN and SAMUEL MORRISON, Baltimore.

Diseases of the Common Bile Duct and Its Relation to the Gastrointestinal Tract (Lantern Demonstration).

MOSES BEHREND, Philadelphia.

A Fractional Bromsulphalein Test Compared to Other Liver Function Tests for Residual Liver Damage (Lantern Demonstration).

EMMANUEL DEUTSCH, Boston.

Discussion to be opened by MAX THOREK, Chicago; MOSES PAULSON, Baltimore; FRANKLIN W. WHITE, Boston; J. RUSSELL TWISS, New York; JULIUS FRIEDENWALD, Baltimore, and S. ALLEN WILKINSON JR., Boston.

SECTION ON RADIOLOGY

MEETS IN EAST BALLROOM OF THE COMMODORE

OFFICERS OF SECTION

Chairman—MERRILL C. SOSMAN, Boston.

Vice Chairman—RAYMOND C. BEELER, Indianapolis.

Secretary—JOHN T. MURPHY, Toledo, Ohio.

Executive Committee—B. R. KIRKLIN, Rochester, Minn.; R. G. TAYLOR, Los Angeles; MERRILL C. SOSMAN, Boston.

Wednesday, June 12—9 a. m.

Medication in the Control of Pain in Terminal Cancer with Reference to the Study of Newer Synthetic Analgesics (Lantern Demonstration).

LYNDON E. LEE JR., Wrentham, Mass.

Discussion to be opened by DAVID I. MACHT, Baltimore.

Surgical Methods for the Relief of Pain (Lantern Demonstration).

FRANCIS C. GRANT, Philadelphia.

Röntgen Therapy for Bronchiogenic Carcinoma (Lantern Demonstration).

EUGENE T. LEDDY and HERMAN J. MOERSCH, Rochester, Minn.

Discussion to be opened by MAURICE LENZ, New York.

Studies in Radiation Sickness: Variations in the Intestinal Pattern in Sickness Accompanying Protracted Irradiation of Deep-Seated Tumors (Lantern Demonstration).

WILLIAM STUART WALLACE, Durham, N. C.

Discussion to be opened by ROSS GOLDEN, New York.

The Nature and Pathology of Radiation Sickness (Lantern Demonstration).

VIRGIL H. MOON, KARL KORNBLUM and DAVID R. MORGAN, Philadelphia.

Treatment of Uterine Fibromyomas (Lantern Demonstration).

WILLIAM E. COSTOLOW, Los Angeles.

Discussion to be opened by WILLIAM P. HEALY, New York.

Thursday, June 13—9 a. m.

Election of Officers

Chairman's Address: Subclinical Mitral Disease (Lantern Demonstration).

MERRILL C. SOSMAN, Boston.

The Mechanical Effects of Patent Ductus Arteriosus on the Heart and Their Relation to the X-Ray Signs (Lantern Demonstration).

EUGENE C. EPPINGER and C. SIDNEY BURWELL, Boston.

Discussion to be opened by WILLIAM D. STROUD, Philadelphia.

Experiences with Surgical Treatment of the Patent Ductus Arteriosus: A Summary of Nine Cases (Lantern Demonstration).

ROBERT E. GROSS, Boston.

Discussion to be opened by CLAUDE S. BECK, Cleveland.

Aneurysm of the Ventricle of the Heart (Lantern Demonstration).

MARSHALL N. FULTON, Boston.

Discussion to be opened by WILLIAM J. KERR, San Francisco.

The Heart in Nutritional Deficiencies (Lantern Demonstration).

SOMA WEISS, Boston.

Discussion to be opened by TOM D. SPIES, Cincinnati.

Friday, June 14—9 a. m.

JOINT MEETING WITH SECTION ON LARYNGOLOGY, OTOTOLOGY AND RHINOLOGY

Osteomyelitis of the Frontal Bone (Lantern and Motion Picture Demonstration).

HARRIS P. MOSHER, Boston.

Radiologic Aspects of Osteomyelitis of the Frontal Bone (Lantern Demonstration).

A. S. MACMILLAN, Boston.

Discussion on papers of Drs. MOSHER and MACMILLAN to be opened by CORNELIUS G. DYKE, New York; ARTHUR C. JONES, Boise, Idaho; JOSEPH E. J. KING, New York, and SAMUEL R. SKILLERN JR., Philadelphia.

The Complications of Mastoid Surgery (Lantern Demonstration).

GORDON F. HARKNESS, Davenport, Iowa.

Roentgen Signs of Mastoiditis and Its Complications (Lantern Demonstration).

VINCENT C. JOHNSON, Ann Arbor, Mich.

Discussion on papers of Drs. HARKNESS and JOHNSON to be opened by ERNEST M. SEYDELL, Wichita, Kan., and FREDERICK M. LAW and ISIDORE FRIESNER, New York.

Radiologic Treatment of Metastatic Cervical Lymph Nodes (Lantern Demonstration).

CHARLES L. MARTIN, Dallas, Texas.

Discussion to be opened by JAMES J. DUFFY and DOUGLAS QUICK, New York, and C. A. WHITCOMB, Philadelphia.

SECTION ON MISCELLANEOUS TOPICS, SESSION ON ANESTHESIA

MEETS IN EAST BALLROOM OF THE COMMODORE

OFFICERS OF SESSION

Chairman—PAUL M. WOOD, New York.

Secretary—HENRY S. RUTH, Merion, Pa.

Wednesday, June 12—2 p. m.

Chairman's Address (Lantern Demonstration).

PAUL M. WOOD, New York.

Anesthesia and Liver Injury with Special Reference to Plasma Prothrombin Levels (Lantern Demonstration).

STUART C. CULLEN, S. E. ZIFFREN, R. B. GIBSON and H. P. SMITH, Iowa City.

Discussion to be opened by HUDERTA M. LIVINGSTONE, Chicago, and HUBERT R. HATHAWAY, Madison, Wis.

Studies on the Absorption of Carbon Dioxide from Anesthetic Mixtures (Lantern Demonstration).

E. A. ROVENSTINE and JOHN ADRIANI, New York.

Discussion to be opened by RALPH M. WATERS, Madison, Wis., and JOSEPH KREISELMAN, Washington, D. C.

Abdominal Blocks in Conjunction with General Anesthesia for Upper Abdominal Surgery (Lantern Demonstration).

RALPH M. TOVELL and CHARLES B. HINDS JR., Hartford, Conn.

Discussion to be opened by JOHN S. LUNDY, Rochester, Minn.

The Anesthetist's Part and Opportunity in the Diagnosis and Treatment of Postoperative Atelectasis (Lantern Demonstration).

LYDD H. MOUSEL, Rochester, Minn.

Discussion to be opened by U. H. EVERSOLE, Boston, and HERMAN J. MOERSCH, Rochester, Minn.

Criteria in the Choice of Anesthesia (Lantern Demonstration).

MEYER SAKLAD, Providence, R. I.

Discussion to be opened by A. H. MILLER, Providence, R. I., and CHARLES F. MCCUSKEY, Glendale, Calif.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit will occupy the fourth floor of the Grand Central Palace, reached by elevators or stairways from the Technical Exhibit on the three lower floors.

In addition to groups of exhibits sponsored by the sections of the Scientific Assembly, there will be several features of interest. The Board of Trustees has authorized three special exhibits—fractures, lame backs and fresh pathology. The exhibit symposium on heart disease, presented in cooperation with the American Heart Association, includes material not only on the subject of heart disease but also on peripheral vascular disease, as well as a group of motion pictures in an area adjoining the exhibit. Other motion picture programs will be conducted by the Section on Dermatology and Syphilology and the Section on Nervous and Mental Diseases.

Admission to the Scientific Exhibit will be limited to persons wearing Fellowship or other badges of the convention and to guests to whom special cards of admission have been issued. The public will not be admitted to the Scientific Exhibit.

Special Exhibit on Fractures

The special exhibit on fractures is continued again under the auspices of the same committee which has conducted the exhibit for the past several years:

Kellogg Speed, Chicago, chairman.
Frank D. Dickson, Kansas City, Mo.
Walter Estell Lee, Philadelphia.

The following subjects will be considered:

1. Plaster of Paris: Making and Storing.
2. Application of Plaster of Paris.
3. Fracture of the Lower End of the Radius.
4. Fracture of the Spine—Compression.
5. Fracture of the Ankle.
6. Emergency Treatment of Fractures of the Lower Extremities.

Dr. Henry H. Ritter, New York, is local representative for the fracture exhibit.

The following physicians will take part in the demonstration:

John D. Adams, Boston.	Earl D. McBride, Oklahoma City.
W. A. Boyd, Columbia, S. C.	Arthur R. Metz, Chicago.
Eugene J. Bozsan, New York.	C. H. Moore, Philadelphia.
Dwight F. Clark, Evanston, Ill.	Gordon M. Morrison, Boston.
J. R. Cobb, New York.	R. J. Mroz, Rockford, Ill.
Francis M. Conway, New York.	John R. Nilsson, Omaha, Neb.
George J. Curry, Flint, Mich.	John Paul North, Philadelphia.
Irvine E. Delbert, Camden, N. J.	E. Payne Palmer, Phoenix, Ariz.
Egbert Fell, Chicago.	Russell H. Patterson, New York.
L. K. Ferguson, Philadelphia.	Grover C. Penberthy, Detroit, Mich.
Ralph E. Goodall, New York.	Francis G. Pipkin, Kansas City, Mo.
Halford Hallock, New York.	L. M. Rankin, Upper Darby, Pa.
V. L. Hart, Minneapolis.	Sheppard Remington, Chicago.
John C. Howell, Philadelphia.	Dean L. Rider, Riverside.
Robert R. Impink, Reading, Pa.	R. C. Robertson, Chattanooga, Tenn.
Frederick A. Jostes, St. Louis.	L. D. Smith, Milwaukee, Wis.
Robert H. Kennedy, New York.	Russell F. Sullivan, Philadelphia.
K. M. Lewis, New York.	Arthur A. Thibodeau, Boston.
James R. Lincoln, New York.	H. W. Virgin Jr., Madison, Wis.
Walter D. Ludlum Jr., New York.	Milton J. Wilson, New York.
Lewis Manges, Philadelphia.	James M. Winfield, Detroit, Mich.
James W. Martin, Omaha, Neb.	Walter D. Wise, Baltimore, Md.
James B. Mason, Philadelphia.	

Special Exhibit on Lame Backs

The special exhibit on lame backs is presented for the first time this year under the auspices of an exhibit committee composed of:

Frank R. Ober, Boston, chairman.
Carl Badgley, Ann Arbor, Mich.
J. Archer O'Reilly, St. Louis.
Arthur Steindler, Iowa City.
Philip D. Wilson, New York.

An advisory committee is composed of:

E. J. Carey, Milwaukee.
Fremont Chandler, Chicago.
H. Earle Conwell, Birmingham, Ala.
John S. Coulter, Chicago.
Frank Dickson, Kansas City, Mo.
Albert Ferguson, New York.
Angus Frantz, New York.
Kristian Hansson, New York.
Albert Key, St. Louis.
Philip Lewin, Chicago.
Jason Mixer, Boston.
John Saunders, San Francisco.
Robert Schrock, Omaha.
Byron Stoekey, New York.
Theodore Willis, Cleveland.
Harlan Wilson, Columbus, Ohio.
W. E. Wolcott, Des Moines, Ia.

The exhibit deals with the following factors:

Anatomy.	Roentgenograms.
Pathology.	Physical therapy.
Examination of lame backs.	

A competent corps of demonstrators will be present continuously throughout the week, consisting of the following:

Randolph Anderson, Charleston, W. Va.	Denis S. O'Connor, New Haven, Conn.
Joseph S. Barr, Boston.	John W. O'Meara, Worcester, Mass.
Maurice Bellerose, Burlington, Vt.	Theodore E. Orr, Philadelphia.
Leo Brett, Boston.	W. Barnett Owen, Louisville, Ky.
Lloyd T. Brown, Boston.	Robert L. Patterson, New York.
James A. Dickson, Cleveland.	Maurice M. Pike, Hartford, Conn.
Joseph A. Freiberg, Cincinnati.	Frank N. Potts, Buffalo.
Robert V. Funsten, University, Va.	Nicholas S. Ransloff, New York.
Maxwell Harbin, Cleveland.	Abraham M. Rechtman, Philadelphia.
Carl T. Harris, Rochester, N. Y.	Alan DeF. Smith, New York.
R. Nelson Hatl, Springfield, Mass.	Daniel M. Stiefel, Detroit.
Clarence Heyman, Cleveland.	T. Campbell Thompson, New York.
W. Richard Hochwalt, Dayton, Ohio.	James E. M. Thomson, Lincoln, Neb.
Louis G. Howard, Boston.	William H. Von Lackum, New York.
M. Beckett Howarth, New York.	Allen F. Voshell, Baltimore.
H. F. Johnson, Omaha.	Edward T. Wentworth, Rochester, N. Y.
Frederick A. Jostes, St. Louis.	Harry Winkler, Charlotte, N. C.
Ramond Lenhard, Baltimore.	
Daniel Levinthal, Chicago.	
Joseph E. Milgram, Brooklyn.	
W. Barclay Moffat, Red Bank, N. J.	

Special Exhibit on Fresh Pathology

The special exhibit on fresh pathology is presented with the cooperation of the Section on Pathology and Physiology by an exhibit committee composed of:

Harrison S. Martland, Newark, N. J., chairman.
Gilbert J. Daldorf, Valhalla, N. Y.
Milton Helpern, New York.

The advisory committee consists of the following:

Thomas A. Gonzales, New York.	Eugene L. Opie, New York.
James W. Jobling, New York.	Maurice N. Richter, New York.
Paul Klempner, New York.	Armin V. St. George, New York.
David Marine, New York.	

Demonstrations will be carried on continuously throughout the week by the following pathologists:

William Antopol, Newark, N. J.	Louise H. Meeker, New York.
William Aronson, New York.	Rudolf M. Pallauf, New York.
Charles G. Darlington, New York.	David Perla, New York.
Joseph Felsen, New York.	Abou D. Pollack, New York.
Arthur M. Ginzler, New York.	S. Milton Rabson, New York.
Joseph H. Globus, New York.	Julius Rosenthal, New York.
Irving Graef, New York.	Angelo M. Sala, New York.
Leila C. Knox, New York.	Solomon Weintraub, New York.
Louis L. Lefkowitz, New York.	

Section on Orthopedic Surgery

The representative to the Scientific Exhibit from the Section on Orthopedic Surgery is Mather Cleveland, New York.

R. K. GHORMLEY, E. F. ROSENBERG and P. S. HENCH, Mayo Clinic, Rochester, Minn.:

Types of Rheumatic Diseases: Exhibit presenting a summary of the pathologic features together with characteristic clinical and roentgenologic changes of the commoner rheumatic diseases such as rheumatoid arthritis, gout, gonorrheal and other specific arthritides, fibrositis, hypertrophic arthritis, Heberden's nodes, Charcot's joint, tuberculous arthritis, and osteochondromatosis; each type of disease illustrated by means of clinical photographs, roentgenograms, histologic preparations and moulages.

CHARLES F. GESCHICKTER and I. H. MASERITZ, Baltimore:

Bone Tumors: Exhibit of roentgenograms, transile films, photomicrographs, gross specimens and microscopic sections presenting a complete series of primary and secondary tumors of bone presented from clinical, roentgenologic and pathologic points of view; early and late roentgenologic changes and the corresponding pathologic pictures; roentgenologic variations commonly observed in daily practice; difficulties in clinical diagnosis and the similarity between various types of primary and secondary tumors, osseous changes in leukemia and various diseases of bone.

PHILIP LEWIN, Chicago:

Foot and Ankle: Their Injuries, Diseases, Deformities and Disabilities: Exhibit of transparencies, roentgenograms, drawings, models, charts, diagrams, motion pictures and demonstra-

tions discussing the etiology, pathologic changes, symptoms, diagnosis and treatment of injuries, diseases and defects of the foot and ankle, including congenital, developmental, traumatic, static, infectious arthritic, paralytic and neoplastic conditions; braces, plaster of paris casts and other apparatus; evaluation of physical therapy; methods of applying adhesive strapping to the foot, ankle and calf; obstetric and industrial aspects of the sub-

ditions encountered in daily practice are presented; the instrument with which such records are made is demonstrated; motion pictures.

C. R. ROUNTREE and STANLEY SELL, Crippled Children's Hospital, Oklahoma City:

Diaphysectomy for Chronic Osteomyelitis of the Fibula: Exhibit of roentgen studies before and after removal of the fibula, with a brief summary of the case history including date of operation and end result; attention given to the disturbance in growth in length following removal of a large part of the shaft of the fibula and the degree of regeneration which ensues following this procedure; drawings showing the technic of the operation.

E. K. CRAVENER and D. G. MACELROY, Schenectady, N. Y.:

Development, Mechanism and Injuries of the Internal Semilunar Cartilage: Exhibit of models, charts and graphs presenting the development, mechanics and functions of the semilunar cartilage; mechanism of injuries with changes which develop after meniscus injuries; study of body types in which cartilage injuries develop, with correlation of body structure to predisposition; physiologic changes which accompany the advance of age.

WILLIS C. CAMPBELL, J. S. SPEED, HAROLD B. BOYD and HUGH SMITH, Willis C. Campbell Clinic, Memphis, Tenn.:

Treatment of Fractures of the Ulna with Dislocation of the Head of the Radius (Monteggia Fracture): Exhibit of roentgenograms showing the methods of treatment and end results



The Grand Central Palace, New York City's well known exposition building, (located on Lexington Avenue, between 46th and 47th Streets), has been selected for the Scientific and Technical Exhibition to be held in connection with the 91st Annual Session of the American Medical Association in New York City, June 10-14, 1940. The Registration and Information Bureaus, Alumni Registration, and facilities such as railroad, steamship and plane reservations, telegraph and other accommodations, will also be located in this building.

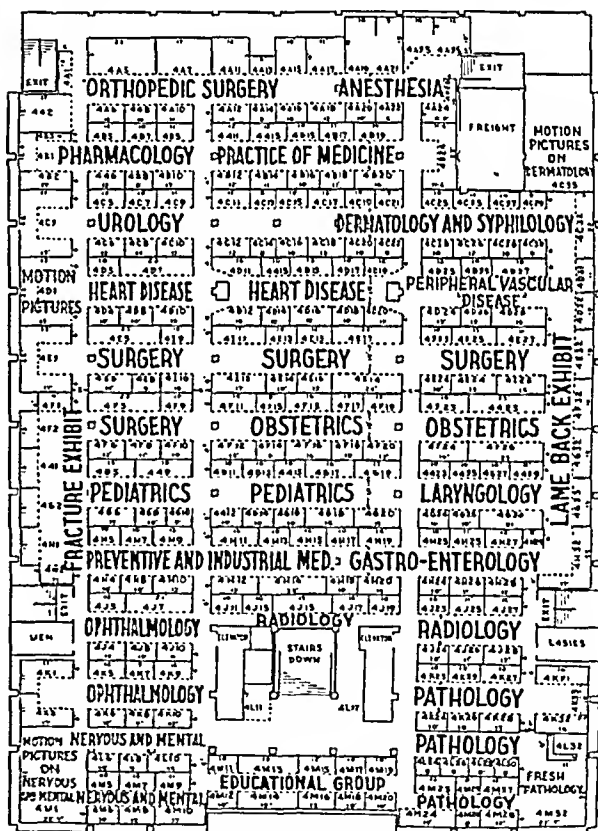
ject and estimation of disability; neurogenic lesions and peripheral vascular lesions; demonstration of shoes and shoe fitting with the more common internal and external modifications of shoes shown on actual models; routine examination of the foot and ankle.

DAVID SASHIN, New York:

Ankylosing Spondylarthritis (Marie-Strümpell-Bechterew's Spine): Exhibit of charts, drawings and tables showing sex and age incidence, present concept of etiology, pathology and differential diagnosis; macerated specimens of the spine and sacroiliac joint; photographs, roentgenograms and case histories tracing the clinical course; orthopedic supports, plaster of paris and celluloid corsets and braces; exhibit points out disabling and deforming character of this condition and stresses the importance of early diagnosis and the use of orthopedic measures in treatment and in prevention of deformities.

R. PLATO SCHWARTZ and ARTHUR L. HEATH, Strong Memorial Hospital, Rochester, N. Y.:

Foot Pressure—Where, When and How Much: Exhibit showing that in response to respective muscles the plantar surface of the foot serves different functions in particular areas; this difference is accompanied by differences in pressure at corresponding levels from heel to toe in the "normal" stance phase of the step; both mild and severe limitations in function of the foot are accompanied by characteristic changes in pressure at particular places; the "normal" painless foot, shod and unshod, has a very different pressure distribution; the same is true of pronated feet with and without callosities; the definition and removal of excessive pressure is a clinical problem which will be expressed by measurement of relative pressures during the act of walking; the recorded pressures of these and other con-



The Scientific Exhibit, fourth floor, Grand Central Palace.

in fractures of the ulna with operative exposure of this fracture; various methods of treatment, functional results and operative technic illustrated by drawings and motion pictures.

CHARLES F. NELSON and ROLAND C. NELSON, The Nelson Clinic, Beverly Hills, Calif.:

Bone Metabolism: Exhibit showing the factors concerned in bone metabolism as related to healing of fractures, posture and bone disease; histologic preparations, colored photomicrographs,

roentgenographic transparencies and models demonstrating the effect of various minerals, glands and vitamins on the healing and development of bone.

SAMUEL KLEINBERG, New York, and **THOMAS HORWITZ**, Philadelphia:

Investigation into the Obstetric Experience of Women Who Have Had Infantile Paralysis: Exhibit presenting the analysis of 328 cases divided into three studies: (1) the pelves of 101 unselected women paralyzed by previous acute anterior poliomyelitis examined and measured roentgenographically; various factors which led to pelvic deformation evaluated; (2) cases of twenty-nine patients in whom an acute attack of anterior poliomyelitis complicated pregnancy, analyzed from the literature and from own records; (3) cases analyzed of 243 patients in whom pregnancy occurred one year or more after the acute phase of illness, with notations on the degree of paralysis, pelvic deformity, course of pregnancy, complications of pregnancy, progress and management of labor, type of delivery and complications in the mother and offspring following delivery.

MAURICE H. HERZMARK, New York:

Evolution of the Knee Joint: Exhibit of illustrations of dissections of the interior of the knee joints of animals in line of ascent from amphibians to primates, showing the evolution of the various structures of the knee, such as synovia, menisci, cruciate ligaments, and patella.

PHILIP D. WILSON and **DOMINIC A. DE SANTO**, Hospital for Ruptured and Crippled, New York:

Synovial Membrane Tumors: Exhibit of photographs, photomicrographs, specimens, roentgenograms, histories and summaries of the essential clinico-pathologic features of the various joint and synovial membrane tumors, including xanthomas, hemangiomas, lipomas and sixteen cases of synovioma (synovial sarcoma) of joint, bursa and tendon sheath origin.

BENJAMIN P. FARRELL and **ALBERT B. FERGUSON**, New York:

Cure of Tuberculous Joints: Exhibit showing surgical cure of tuberculous joints; after successful surgical fusion of a tuberculous joint the tissues reach a state recognizable roentgenographically as a healthy appearance; that this indicates permanent cure of the local tuberculous lesion of the joint is shown by the exhibition of prints from all the cases which developed the appearance of health and in none of these has there been local recurrence of the disease; this recognizably cured state of the lesion is rarely if ever seen following conservative treatment without surgical fusion.

EDWIN DAVID WEINBERG, Baltimore:

Syphilitic Bone and Joint Lesions: Exhibit consisting of a study of several hundred cases which reveals the ability of syphilitic bone and joint lesions to simulate almost any known bone and joint condition; an attempt is made to correlate the history, the clinical and x-ray changes with the pathologic picture; included in the series are cases in which bones have been resected because it was thought the lesion was malignant.

DAVID BOSWORTH and **MATTHEW CLEVELAND**, New York:

Tuberculosis of the Spine, Correlation of Pathology and Roentgen-Ray Examinations: Exhibit showing transparencies of roentgenograms before death; photograph of split specimen and transparencies of roentgenograms of the split specimen presented to correlate the roentgenograms and clinical picture before death with the actual conditions which were present; mounted specimens; motion picture showing tuberculous lesions of the spine of various periods of destruction, with complications and differential diagnosis from other lesions.

Exhibits on Anesthesia

The exhibits on anesthesia are presented in cooperation with the Section on Miscellaneous Topics, Session on Anesthesia.

F. W. HARTMAN, **ROY D. McCURE**, **J. G. SCHNEIDORF** and **VICTOR SCHELLING**, Henry Ford Hospital, Detroit:

Anoxia as Related to Anesthesia: Production, Prevention, Treatment and Pathology: Exhibit presenting an experimental and clinical study showing the effect of various sedatives and anesthetics on the oxygen saturation of the arterial blood as determined by the Van Slyke, Kramer and improved Kramer

apparatus in large groups of animals and patients; parallel experimental observations as to the effect of sedatives and anesthetics on tissue respiration made with the Warburg apparatus; pathology of anoxia as produced in the experimental animal and patients with alcohol, sedatives, anesthetics and fever therapy; methods for combating anoxia, including oxygen therapy.

JOHN S. LUNDY, **L. H. MOUSEL**, **R. C. ADAMS** and **E. B. TUOHY**, Mayo Clinic, Rochester, Minn.:

Technic of Local, Regional and Endotracheal Anesthesia: Exhibit of models showing regional and local anesthesia of the scalp, head, neck, thorax, abdomen, inguinal canal and sacrum; spinal, peridural and perivertebral, posterior splanchnic, sacral and caudal anesthesia; models so made that one half shows the important superficial landmarks for the point of approach while the other half shows dissection deep to the level of the point of the needle where the solution is deposited; anatomic models showing technic of endotracheal anesthesia.

ALBERT BEHREND, **HELENA E. RIGGS** and **MOSES BEHREND**, Philadelphia:

Anoxia in Surgery: Exhibit presenting the subject of anoxia in surgery and including an outline of the types of anoxia, the causes that predispose to such anoxia and a discussion of the prevention and treatment of anoxia in surgery.

JOHN ADRIANI and **E. A. ROVENSTINE**, New York University College of Medicine, New York:

Absorption of Carbon Dioxide from Anesthetic Mixtures: Exhibit of photographs, charts and drawings illustrating the development and comparing the appliances in use for the absorption of carbon dioxide from respired atmospheres; recent observations on the chemistry, physics and bacteriology involved; model used to visualize the clinical application of carbon dioxide absorption during inhalation anesthesia.

F. A. D. ALEXANDER and **HAROLD E. HIMWICH**, Albany Medical College and Albany Hospital, Albany, N. Y.:

Symptomatology and Physiology of Anoxia: Exhibit demonstrating the symptomatology and mechanisms of production of oxygen want by means of motion pictures, charts and tables; a schematic representation of the various sites in the systems associated with the transport of the physiologic gases where obstruction or insufficiency may result in anoxia; a comparison of the signs and symptoms of acute and chronic oxygen want; experimental evidence of oxygen requirements of the various parts of the brain, and of the relative resistance of the brain of the newborn to oxygen want as compared with the adult.

RUTH M. LATHAM, Detroit:

Reduction in Amount of Inhalation Anesthetic with Use of Pitressin (Preliminary Surgical Reports): Exhibit demonstrating advantages of the vasopressor principle of solution of posterior pituitary and its ability to reduce the amount of inhalation anesthetic agent required for adequate surgical relaxation in abdominal surgery; the effects of pitressin on blood pressure, respiration, pulse and circulation, bleeding and postoperative distention; advantages enumerated are reduction in amount of inhalation anesthetic required, creation of relatively quiet field, no ballooning, ease of packing of operative site, decreased reaction to surgical manipulation and consequent reduction of trauma, ease of closure of incision and aid in postoperative convalescence by reducing surgical trauma and anesthetic after-effects.

OTTO STEINBROCKER, New York:

Local and Regional Analgesia for Intractable Arthralgia, Neuralgia and Related Conditions: Exhibit showing a summary of the indications, contraindications and some techniques in the application of local and regional analgesia to the diagnosis and treatment of intractable pain and disability in arthritis and allied conditions; the more common procedures illustrated with three dimensional diagrammatic models and brief descriptive outlines; the various solutions employed enumerated; table of the results included; motion pictures illustrating some technic.

AMERICAN SOCIETY OF ANESTHETISTS, New York:

Anesthesiology—Historical Development: Exhibit showing bibliography of historically significant books on anesthesia with museum specimens, charts and objects of unusual significance

in the development of anesthesia in all its forms; inhalation therapy and resuscitation; rare books and original pieces of clinical apparatus; Snow's own copy of his first volume on ether; Waters' first carbon dioxide absorber; original cyclopropane gages; first book on chloroform; first hundred articles on artificial sleep; early syringes.

Section on Pharmacology and Therapeutics

The representative to the Scientific Exhibit from the Section on Pharmacology and Therapeutics is Wallace M. Yater, Washington, D. C.

ALVIN E. PRICE, ARTHUR W. FRISCH, JACK ROM, GORDON B. MYERS and CHARLES E. LEMMON, City of Detroit Receiving Hospital, Detroit:

Specific Treatment of Pneumococcal Pneumonia: Exhibit of charts illustrating the clinical response of selected cases to serum, sulfanilamide, sulfapyridine and sulfathiazol; photomicrographs illustrating sputum changes produced by the various therapeutic agents; tables summarizing clinical results with various forms of therapy; tables illustrating the relationship of the number of organisms in the sputum to the outcome of the pneumonia.

NORMAN PLUMMER, New York:

Pneumonia: Diagnosis and Treatment: Exhibit of charts, tables and photographs showing recent developments in the diagnosis and treatment of pneumonia; technics of sputum typing, blood culture examination and sulfapyridine determination; significance of the results of these tests; results of serum therapy and chemotherapy; motion picture presenting briefly the historical background of pneumonia therapy and depicting the actual admission and treatment of a patient with pneumonia.

J. H. CLARK, HARRISON F. FLIPPIN, JOHN G. REINHOLD, S. BRANDT ROSE and L. SCHWARTZ, Philadelphia General Hospital, Philadelphia:

Pneumonia Studies: Exhibit of charts illustrating the pneumonia mortality at the Philadelphia General Hospital during the past seven years; comparative study of the various forms of therapy now available for the treatment of pneumonia; certain observations on the therapeutic effectiveness as well as studies on the pharmacology and toxicology of a new chemotherapeutic agent, namely sulfathiazole; suggestions regarding the handling of patients with pneumococcal pneumonia.

A. E. BENNETT, A. R. MCINTYRE and A. L. BENNETT, University of Nebraska College of Medicine, Omaha:

Pharmacologic and Clinical Investigations with Crude Curare: Exhibit of charts, photographs and motion pictures showing the method of collecting botanically authenticated curare from Indian medicine men in the South American jungle; preparation of alcoholic extracts of potent curare, biologic assay standardization technic; pharmacologic and neurophysiologic experiments demonstrating the drug's action; outline of clinical indications and therapeutic effectiveness of the drug in various neurologic disorders; a new method of preventing traumatic complications from convulsive shock therapy by curarization.

GEORGE MILEY, Philadelphia:

Ultraviolet Irradiation of Autotransfused Blood in the Treatment of Acute Pyogenic Infections: Exhibit of motion pictures showing the technic of irradiating blood with ultraviolet spectral energy in accordance with established principles underlying the irradiation of fluids in general; display of the essential apparatus used; charts showing how dosage is determined and kept relatively constant, and showing the results of this type of therapy in selected cases of acute pyogenic infection, of which over one half had an associated bacteremia; books containing the individual case histories of each of the cases.

SIDNEY O. LEVINSON, HEINRICH NECHLES and FRANK NUWELT, Michael Reese Hospital, Chicago:

Serum as Substitute for Blood in Transfusions: Exhibit of pictures, charts, graphs, tables, kymograph records and short explanatory descriptions of experiments proving the practicality and advantages of serum versus blood transfusion; pictures of processing of serum and its preparation for storage, transportation and transfusion; charts of serum transfusion in patients.

HAROLD A. ABEL and LOUIS WASSERMAN, New York, and S. J. PENCHANSKY, Bayonne, N. J.:

Management of a Blood Bank: Exhibit showing the modus operandi in the use of conserved blood in a general hospital; indications and contraindications; demonstration of material used, as sterile bundle, inexpensive flask, recipient's intravenous set; results of transfusions with respect to rise in hemoglobin in medical and postoperative cases, untoward reactions, chills, fever, urticaria, jaundice, experimental data.

H. M. MARGOLIS, VICTOR W. EISENSTEIN and GILBERT KRAUSE, Pittsburgh:

Dihydrotachysterol in the Treatment of Hypoparathyroid Tetany: Exhibit of charts indicating the usual clinical manifestations of hypoparathyroid tetany and the possible sequelae of uncontrolled hypoparathyroidism; various forms of treatment employed with special emphasis on the results attainable with dihydrotachysterol.

CHARLES G. JOHNSTON, JAMES M. WINFIELD and J. LOGAN IRVIN, Wayne University College of Medicine, Detroit:

A Study of Bile—Its Therapeutic and Physiologic Effects and Chemical Analysis: Exhibit of charts, transparencies and photographs delineating the use of whole bile in suitable clinical cases; the effect of whole bile on the stomach and small intestine of human beings and dogs; the comparative chemical analyses of various types of bile and the effect of whole bile on the absorption of various substances from the intestine.

Section on Practice of Medicine

The Section on Practice of Medicine is presenting exhibits on various phases of internal medicine and is contributing to the Exhibit Symposium on Heart Disease. The representative to the Scientific Exhibit from the Section on Practice of Medicine is Fred M. Smith, Iowa City.

WARREN T. VAUGHAN, Richmond, Va.:

Allergic Dermatoses: Exhibit of photographs illustrating the difference between contact dermatitis and atopic dermatitis; epidermophytids; characteristic cutaneous lesions produced by different types of contact substances such as cosmetics, clothing, shoes, and occupational dust; methods of diagnostic study; slides illustrating the dermatoses, methods of testing and results of allergic therapy.

ABRAHAM RUDY, S. RICHARD MUELLNER and SAMUEL H. EPSTEIN, Boston:

Vitamin Deficiency States in Diabetes Mellitus: Exhibit showing that vitamin deficiencies are observed in controlled and uncontrolled diabetic patients, manifesting themselves in mental, neurologic, bladder, skin, eye and other disturbances; clinicopathologic, cystometric, photographic and roentgen findings shown; unusual cases of deficiency of vitamin B₁ (thiamin chloride) and of the various components of the vitamin B complex, such as nicotinic acid and riboflavin, as well as of multiple deficiencies presented.

L. E. PRICKMAN and H. J. MOERSCH, Mayo Clinic, Rochester, Minn.:

Branchial Stenosis; A Complication of Asthma: Exhibit of models, roentgenograms of the chest, temperature charts and other important diagnostic data, showing that bronchostenosis is an important complication of asthma, occurring more frequently than is generally appreciated, and showing what can be done to bring about prompt relief.

DAVID REISNER, Bureau of Tuberculosis of the Department of Health, Sea View and Metropolitan hospitals, New York:

Beck's Sarcoid and Generalized Sarcoidosis (Boeck-Besnier-Schammoni's Disease): Exhibit of a statistical analysis of findings, photographs illustrating the various types of cutaneous manifestations, roentgenograms of osseous lesions and of various forms of involvement of the lungs, the mediastinal and hilar lymph nodes; histopathologic examination illustrated by a series of photomicrographs of the skin, lymph nodes, lung, spleen, parotid gland and eye; illustrating the character of the lesions in the various organs and emphasis on the generalized nature of the morbid entity; clinical evolution of the disease and the differentiation between stationary, retrogressive and progressive types.

MANDRED W. COMFORT and ARNOLD E. OSTERBERG, Rochester, Minn.:

Tests for Pancreatic Function: Their Application to the Diagnosis of Pancreatic Diseases: Exhibit enumerating the functions of the pancreas and tests for their study; technic of collection of the external pancreatic secretion; disturbances of pancreatic function disclosed by chemical analysis of external pancreatic secretion following stimulation with purified secretion and acetyl-beta-methylcholine chloride (mecholy chloride); disturbances in values of the enzymes in the serum in pancreatic disease; role of tests in the diagnosis of diseases of the pancreas.

PAUL GROSS and FRANK B. COOPER, The Western Pennsylvania Hospital, Pittsburgh:

Urolithiasis Medicamentosa: Exhibit of specimens of lesions of urinary tract and uroliths in rats produced by the administration of sulfapyridine, sulfathiazole and sulfamethylthiazole with photographic enlargements, microscopic sections and photomicrographs.

DAVID AYMAN and ARCHIE D. GOLDSHINE, Boston:

Blood Pressure Determinations by Patients with Essential Hypertension: The Difference Between Clinic and Home Readings Before, During and After Treatment: Exhibit describing patients with various degrees of essential hypertension who had their blood pressure studied over a long period in the clinic and at home; results of study showing that the home systolic and diastolic blood pressure readings are lower than the clinic readings in all cases of essential hypertension; home and clinic readings plotted on graph paper; effect of nitrites, placebos and sedatives; effect of sympathetic resections showing differences between the home and the clinic.

MAURICE BRUGER, J. WILLIAM HINTON and WALTER G. LOUGH, New York:

Iodine Studies in Thyroid Disorders: Exhibit of photomicrographs of normal and pathologic thyroid glands with total, organic and inorganic iodine on each specimen; normal glands divided into age groups; pathologic glands divided into three large categories: toxic goiter of the exophthalmic type, toxic adenoma and nontoxic adenoma; table giving the iodine content of blood in normal subjects and in patients with thyroid disorders; graph relating the total iodine in the blood to the basal metabolic rate in thyroid disorders.

JOHN W. GRAY, WILLIAM G. BERNHARD, GEORGE L. ERDMAN, JOHN E. TOYE, DANIEL E. KAVANAUGH, JEROME H. SAMUEL and ELIZABETH W. BYRNES, Hospital of St. Barnabas and for Women and Children, Newark, N. J.:

Treatment of Rheumatoid Arthritis: Exhibit of charts showing the general and rehabilitation treatment of rheumatoid arthritis with motion picture of corrective measures.

IRVING H. PAGE, K. G. KOHLSTAEDT, A. C. CORCORAN, O. M. HELMER, P. J. FOUTS and G. F. KEMPF, Indianapolis City Hospital, Indianapolis:

Nature of Hypertension: Exhibit illustrating recent functional studies on the nature of the hemodynamic changes within the kidneys before and after the production of hypertension and after the injection of renin and angiotonin; production of renin by the kidney; perinephritic method for the production of hypertension and the mechanism of the humoral control of blood pressure.

ELLIOTT P. JOSLIN, LOUIS I. DUBLIN, HERBERT H. MARKS, H. F. ROOT, PRISCILLA WHITE, ALEXANDER MARBLE and A. P. JOSLIN, Boston:

Diabetes Mellitus: Exhibit presenting current statistics relating to incidence of the disease, with original survey data from Arizona; mortality and prevalence as affected by our aging population; the outlet for the next ten years. Treatment with diet and insulins; diabetic hazards and how to meet them; prevention and treatment of coma and gangrene; management of pregnancy; prognosis of diabetes today. Current research in the determination of the effect of hormonal imbalance on pregnancy and in substitutional replacement therapy; experimental work on the causes and prevention of diabetes, with special reference to endocrine relationships.

Section on Urology

The representative to the Scientific Exhibit from the Section on Urology is John H. Morrissey, New York.

A. R. STEVENS, HOWARD S. JECK, R. S. HOTCHKISS, JOHN W. DRAPER, G. A. HUMPHREYS, A. M. McLELLAN, F. C. McLELLAN, W. R. DELZELL, G. W. SLAUGHTER, JOHN H. MORRISSEY and JOHN MACLEOD, Cornell University Medical College New York Hospital and Bellevue Hospital, New York:

Experimental and Clinical Investigations in Urology: Exhibit of charts, illustrations and motion pictures demonstrating results obtained in experimental work and clinical investigations on cystometry, effect of testosterone on benign hyperplasia, clinical and metabolic study of human sperm, methods of induced hyperpyrexia, technic of cysto-urethrogams and uretero-intestinal anastomosis in dogs.

MEREDITH CAMPBELL and M. J. FEIN, New York University, New York, and Mountinside Hospital, Montclair, N. J.:

Urologic Pathology: Exhibit of mounted surgical and autopsy specimens displayed on transparent pyralin permitting study of both sides of the individual specimens; (1) congenital malformations of the urinary organs (urethral stricture, congenital valves of the posterior urethra, vesical exstrophy, ureteral stricture, congenital hydronephrosis, vascular obstruction of the ureter, abnormal ureteral insertion, polycystic renal disease, horseshoe kidney, etc.); (2) tumors—benign and malignant—of the adrenal kidney, ureter, bladder, prostate, penis, urethra, and testicle, together with unusual metastatic demonstrations; (3) calculous disease of the urinary tract; (4) infections of the urinary organs, tuberculous and nontuberculous; (5) a new mobile teaching cabinet containing specimens and colored photomicrographs of tissue, with a demountable viewing box for exhibition and study of urograms or other roentgenograms.

PERCY S. PELOUZE, Philadelphia, ROGER W. BARNES, Los Angeles, ANSON L. CLARK, Oklahoma City, OSCAR F. COX, Boston, ROGERS DEAKIN, St. Louis, and R. A. VONDERLEHR, U. S. Public Health Service, Washington:

Sulfanilamide in the Treatment of Gonorrhea in the Male: Exhibit of graphs and charts showing the comparative effectiveness of sulfanilamide in the treatment of gonorrhea in the male in terms of clinical and laboratory response.

ABRAHAM HYMAN and SEYMOUR F. WILHELM, Beth Israel Hospital, New York:

Plastic Operations on the Renal Pelvis and Ureter: Exhibit of transparencies illustrating the various types of plastic operations on the renal pelvis and upper part of the ureter; pre-operative and postoperative pyelograms, demonstrating the early and late results of operations.

EMILY DUNNING BARRINGER, HYMAN STRAUSS, S. K. GREENBERG, E. A. HOROWITZ, B. H. SCHOOLNIK, D. F. CROWLEY, J. A. E. SASS, C. A. GAFFNEY, in collaboration with ARCHIBALD McNEIL, Kingston Avenue Hospital, Department of Hospitals, New York:

Treatment of Gonorrhea in the Adult Female: A Study of the Comparative Value of Different Methods: Exhibit dealing with various methods of treatment; routine treatment, filtrates, massive doses of gonococcus vaccine; fever therapy; electrothermic treatment, diathermy, surgical treatment; sulfanilamide, sulfapyridine and allied products; advantages and disadvantages of each.

J. EASTMAN SHEEHAN, New York:

Plastic Operations: Exhibit of photographs and casts before and after operation; specimens connected with plastic repair; motion pictures.

WILLIAM L. F. FERBER, THOMAS A. MORRISSEY and JAMES R. LISA, New York:

Pelvic Infection in the Male: Exhibit of gross specimens and microscopic sections indicating infection of the male pelvic and perirenal structures; demonstrating the effect of these processes on the upper urinary tract; abstracts of clinical course and autopsy results; motion picture of the surgical procedures for the treatment of infection of the male adnexae.

CHARLES B. HUGGINS, PHILLIP CLARK and W. W. SCOTT, University of Chicago, Chicago:

Experimental Benign Hypertrophy of the Prostate in the Dog: Exhibit dealing with clinical observations on benign prostatic hypertrophy in man and an experimental study in old dogs; presentation of a physiologic method of study of the prostate in dogs over long periods of time; demonstrations of an experimental method of producing cystic prostatic hypertrophy and of methods which have induced shrinkage of spontaneous prostatic hypertrophy in dogs.

HENRY SANGREE, WILLIAM M. LEEBRON and ADELAIDE CURTIS, University of Pennsylvania, Philadelphia:

Fertility in the Male, Surgical and Clinical Problems: Exhibit of statistics, charts, drawings, microscopic slides and photographs showing a summary of 400 cases of male fertility examinations; normal sperm under the high powered microscope; demonstration of an ombrédanne operation for hypospadias; motion pictures of epididymovasostomy and epispadic operations; models of those three operations shown on anatomic specimens; microscopic demonstration of sperm in normal and abnormal mediums; stained slides of abnormal sperm; causes of infertility shown as chronic prostatitis, syphilis and endocrine disorders.

WALTER I. BUCHERT, Danville, Pa.:

Air Pyelography: Exhibit showing the value of the air pyelogram in diagnosis and localization of renal stones, and consisting of a series of transparencies including a scout film of the kidney, air pyelograms and pyelograms with opaque media for each case; also specimen in operative cases.

B. C. CORBUS and B. C. CORBUS, JR., Chicago:

Cutaneous Diagnosis of Neisseria Infection: Exhibit of moulages, photographs and slides showing the cutaneous allergic response in individuals infected with the gonococcus; the passive transfer (Prausnitz-Kustner) reaction; typical negative reaction with noninfected individuals.

WALTER M. KEARNS, Milwaukee:

Testicular Deficiency: Exhibit demonstrating by means of transparencies of photographs, colored charts, drawings, etc., the methods of treatment in various types of hypogonadism; causes, methods of examination and treatment of male infertility; an improved method of extraction and determination of androgens in the urine.

ARTHUR J. GREENBERGER, MONROE E. GREENBERGER and OSCAR AUERBACH, Sea View Hospital, Staten Island, N. Y.:

Genito-Urinary Tuberculosis: Exhibit of roentgenograms and pathologic specimens of genito-urinary tuberculosis.

Section on Dermatology and Syphilology

The representative to the Scientific Exhibit from the Section on Dermatology and Syphilology is Hamilton Montgomery, Rochester, Minn. In addition to the exhibits, motion pictures will be shown in an adjoining area.

REUBEN L. KAHN, Ann Arbor, Mich.:

Detection of False Positive Reactions in Serodiagnosis of Syphilis: Exhibit of charts illustrating basis of a test for the detection of false positive serologic reactions; detection of reactions in the absence of syphilis given by lower animals, leprosy, malaria and other pathologic cases; detection of reactions in syphilis; concept of two types of positive reactions—a syphilitic type and a general biologic type; differentiation of the two types of reactions by means of "verification test"; practical demonstrations with verification test of true and false positive serologic reactions.

EVERETT S. SANDERSON, ROBERT B. GREENBLATT and RICHARD TORPIN, Medical School, University of Georgia, Augusta:

The Newer Venereal Diseases: Exhibit of moulages, photographs and charts illustrating various clinical manifestations of lymphogranuloma venereum, granuloma inguinale, and chancroid in males and females.

A. BENSON CANNON and HAZEL BISHOP, New York:

Syphilitic Lesions and Other Lesions Resembling Syphilis: Exhibit of colored slides showing (1) primary syphilis differentiated from chancroid; (2) secondary syphilis differentiated

as follows: condylomata lata (syphilitic) from condylomata acuminata; generalized lesions of secondary syphilis from psoriasis, pityriasis rosea, dermatitis medicamentosa, lichen planus; mucous patches from stomatitis due to contact irritant; (3) tertiary lesions showing gumma differentiated from ulcer and epithelioma (4) congenital syphilis showing Hutchinson's teeth differentiated from malformation due to nutritional disturbances.

DONALD M. PILLSBURY, NORMAN R. INGRAHAM JR. and HERMAN BEERMAN, Department of Dermatology and Syphilology, University of Pennsylvania, Philadelphia:

Roentgen and Serologic Diagnosis, Treatment Methods and Epidemiologic Control in Congenital Syphilis: Exhibit of roentgenograms of bone in congenital syphilis; standard treatment methods; oral treatment with acetarsone and sobisminol; charts showing incidence of congenital syphilis in relation to age of maternal infection, and treatment; social service follow-up and familial study.

RHODA W. BENHAM and EDWARD D. DELAMATER, Columbia University, New York:

Yeast-like Parasites of the Skin: Candida (Monilia), Cryptococcus, Pityrosporum: Exhibit of charts, photographs and cultures showing the diagnostic characteristics of the main species of the genus Candida (Monilia); cultures and photographs of the groups of Cryptococci; Pityrosporum ovale, the organism isolated from seborrheic lesions of the scalp described and illustrated with photographs of the organism as it appears in the scales and on cultures; cultures on various mediums.

HAROLD N. COLE, GERARD DEOREO, JAMES R. DRIVER, HERBERT JOHNSON and WALTER SCHWARTZ, Cleveland:

Use of Bismuth Salts to Control Course of Artificial Malaria: Exhibit showing the effect of various heavy metals, gold, mercury, arsenic, antimony and bismuth in controlling course of chills in artificial malaria used for the treatment of syphilis, with discussion and results. Advantages of thio-bismol.

LESLIE M. SMITH, El Paso, Texas:

Blastomycosis and the Blastomycosis-like Infections: Exhibit of charts, photographs, photomicrographs and drawings showing cultures of the more common organisms of this group and clinical photographs, together with the various blastomycosis-like mycoses briefly described and differentiated.

C. W. EMMONS, National Institute of Health, Washington, D. C., and HOWARD HAILEY and HUGH HAILEY, Atlanta, Ga.:

Chromoblastomycosis; Unusual Case with Early Diagnosis and Response to Therapy: Exhibit of photographs of the lesion and of the fungus which was the etiologic agent; photomicrographs of this strain and of strains isolated from other cases, illustrating the characteristic morphology of this fungus, *Hormodendrum pedrosoi*, and its relationship to the other etiologic agent of the disease, *Phialophora verrucosa*; cultures and microscopic preparations illustrating the fungus.

ALBERT STRICKLER, Philadelphia:

Cutaneous Malignant Growths: Exhibit of photographs illustrating results in cutaneous malignant growths obtainable through intravenous injection of irradiated colloidal lead phosphate; illustrations of the frequently good results obtainable through local injection of irradiated colloidal lead phosphate alone and in conjunction with irradiation.

LOUIS SCHWARTZ, National Institute of Health, Bethesda, Md., EDWARD A. OLIVER, Chicago, and LEON H. WARREN, National Institute of Health, Bethesda, Md.:

Occupational Leukoderma: Exhibit of photographs, charts, rubber gloves and chemicals, showing method of investigation of actual cases and chemical causing occupational leukoderma.

E. E. BARKSDALE, Danville, Va.:

Cutaneous Manifestation from Tobacco with Special Reference to Arsenical Exfoliative Dermatitis: Exhibit of an analysis showing that tobacco contains arsenic; presentation of cases with exfoliative dermatitis and high blood arsenic, showing improvement when patient refrains from using tobacco; a series of control cases.

GEORGE M. LEWIS and MARY E. HOPPER, New York:

Management of Chronic Dermatophytosis: Exhibit of charts, pictures and demonstrative material showing that this fungous disease, affecting the skin and nails, is common but is frequently either overlooked or not correctly diagnosed; causative micro-organism (*Trichophyton purpureum*) is not found in acute dermatophytosis; studies have delineated the disease syndrome and have correlated the variants of the causative fungus; public health aspect and the results of case finding; methods of treatment of this resistant mycosis.

F. T. BECKER, Duluth Clinic, Duluth, Minn.:

Milkers' Nodules: Exhibit showing illustrations of typical cases of milkers' nodules; case histories, pathology of various stages of the infection, diagnostic criteria and differential diagnosis.

LOUIS H. WINER, Minneapolis:

Pseudo-Epitheliomatous Hyperplasia: Exhibit of chart with outline, showing clinical and microscopic representations.

FRANCIS P. MCCARTHY, JAMES C. HEALY and FRANCIS H. DALEY, Tufts College Dental School, Boston:

Diseases of the Oral Cavity: Exhibit of transparencies, lantern slides and charts presenting a clinical and pathologic study; special group of cases of leukoplakia buccalis, showing clinical and pathologic gradations; the manifestation of bismuth therapy in the oral cavity; the allergic reactions of the gingivae, and the oral lesions associated with the blood dyscrasias, metabolic deficiency diseases and the eruptive lesions associated with the dermatoses.

MOTION PICTURES

The following motion pictures will be shown on a regular schedule in an area adjoining the exhibits of the Section on Dermatology and Syphilology:

J. L. CALLAWAY and N. F. CONANT, Durham, N. C.:

The Diagnosis and Management of Cutaneous Blastomycosis (Gilchrist's Disease).

J. G. DOWNING, Boston:

Dermatoses from External Causes.

A. E. SCHILLER, Detroit:

Lichen Planus.

L. A. BRUNSTING, Rochester, Minn.:

Treatment of Psoriasis.

C. W. LAYMON, Minneapolis:

Cutaneous Neoplasms with Special Reference to Diagnosis.

A. B. CANNON, New York:

Technic Employed in the Treatment of Roentgen Ray Burns and Other Skin Disfigurements.

EXHIBIT SYMPOSIUM ON HEART DISEASE

The exhibit symposium on heart disease, including peripheral vascular disease, is presented in cooperation with the American Heart Association under the guidance of a committee composed of Thomas M. McMillan and Norman E. Freeman, Philadelphia.

MOTION PICTURES

The following motion pictures will be shown in an area adjoining the exhibits on heart disease:

CLAYTON J. LUNDY, Chicago:

The Normal Heart Beat Mechanism.

Extrasystoles—Six Types.

Paroxysmal Tachycardia—Six Types.

Auricular Fibrillation and Flutter.

Heart Block.

Arteriosclerotic Heart Disease.

Rheumatic Heart Disease.

Heart Murmurs in Rheumatic Heart Disease.

WILLIAM H. STEWART, H. C. MAIER and CHARLES W. BREIMER, Lenox Hill Hospital, New York:

Cine-Roentgenographic Studies of the Human Pulmonary Circulation, Heart Chambers and Greater Blood Vessels (Robb and Steinberg Method).

AMERICAN HEART ASSOCIATION, New York:

American Heart Association: Exhibit of educational and exhibit material including books, pamphlets, and leaflets on various phases of cardiovascular disease; photographs and life-size models of normal and abnormal hearts.

H. R. MILLER and L. VOSBURGH LYONS, New York:

Cardiac Innervation: Exhibit presenting a graphic visualization of the entire cardiac innervation; anatomic charts representing a progressive series and each drawing designed to carry a concept or anatomic structure absent in the immediate antecedent drawing; illustrations which are in relation to the bodily contour permitting easy recognition of every portion of the cardiac nerve supply in relation to other nearby structures and to the body as a whole; exhibit provides a basis for the study of the radiation and surgical treatment of cardiac pain.

HUGO ROESLER, Temple University Medical School, Philadelphia:

Radiology and Pathology of Heart Disease: Exhibit of roentgenograms, electrocardiograms and anatomic specimens, in form of transparencies, demonstrating a great variety of diseases of the heart and great vessels, each case presenting a correlated study of clinical, laboratory, electrocardiographic, radiologic and postmortem examinations.

SAMUEL BELLET, ALFRED KERSHBAUM, LEON SCHWARTZ and RICHARD H. MEADE JR., University of Pennsylvania and Philadelphia General Hospital, Philadelphia:

Effect of Tobacco Smoke and Nicotine on the Normal Hearts of Dogs and on the Myocardium Damaged by Coronary Artery Ligation: Exhibit of charts showing the results of experiments comparing the effects of tobacco smoke and nicotine on the electrocardiogram on normal dogs and in dogs with myocardial damage produced by coronary artery ligation. Electrocardiographic changes of nicotine are shown in the acute, subacute and chronic stages of myocardial infarction. The effects of nicotine on the blood pressure and electrocardiograms of normal and sympathectomized animals are compared. The pharmacology of nicotine is discussed.

O. F. HEDLEY, U. S. Public Health Service, Philadelphia:

Salient Public Health Features of Rheumatic Heart Disease: Charts showing the incidence of rheumatic heart disease in Philadelphia hospitals based on a study of 4,653 cases, involving 5,921 admissions; age, race and sex distribution of fatal and nonfatal cases; age of onset and other pertinent information; relative importance of rheumatic heart disease as a cause of death in Philadelphia as compared with other well known diseases; especially among persons under 20 years of age; geographic distribution and trends in mortality from heart disease (mostly rheumatic heart disease) among persons 5 to 25 years of age throughout the United States during the period of 1922-1929; cities with the highest mortality from heart disease; incidence of rheumatic heart disease among 100,000 college students; need for adequate physical examinations, because of the danger of overdiagnosis, especially in smaller colleges with inadequate student health services.

CHARLES L. CHRISTIERNIN, LOUIS I. DUBLIN and D. B. ARMSTRONG, Metropolitan Life Insurance Company, New York:

Basic Studies of the Aging Cardiovascular System: Exhibit presenting three related studies which are part of a broad approach to the problem of the aging cardiovascular system, based on a group of men and women engaged in office work: (1) physical survey of a group of office workers at age 40 with particular emphasis on the cardiovascular system, including data on medical history, important impairments, weight, blood pressure and certain electrocardiographic tracings; (2) analysis of serial electrocardiograms of 253 office workers who have attained age 40 and who have never presented any evidence of cardiovascular disease, actual or potential; (3) variability of certain electrocardiographic abnormalities on successive annual tracings of 1,882 office workers age 40 and over.

ARTHUR M. MASTER, RICHARD GUNNER, ARTHUR GRISHMAN, SIMON DACK and HARRY L. JAFFE, Cardiographic and X-Ray Laboratory, Mount Sinai Hospital, New York:

Fluoroscopic Diagnosis of Cardiac Infarction Following Coronary Artery Occlusion: Exhibit showing that fluoroscopy is a valuable adjunct in the study of patients with coronary

artery disease; localized abnormalities in left ventricular contraction observed fluoroscopically in 73 per cent of cases studied at intervals varying from four weeks to six years following an attack of coronary artery occlusion; various types of pulsation observed illustrated by tracings made directly from the fluoroscopic screen, by motion pictures of the heart during fluoroscopy, and by roentgenkymograms; records of normal subjects and of those with other types of heart disease shown for comparison.

J. ROSS VEAL and HUGH HUSSEY, Washington, D. C.:

Venous Pressure Studies in Cardiovascular and Peripheral Vascular Diseases: Exhibit of charts, drawings, photographs and motion pictures showing the methods of performing venous pressure studies; the clinical application; new "sensitive exercise test" for use in upper and lower extremities in recording venous pressure; its use in detecting local venous occlusion; differentiation between venous edema and edema due to other causes; the use and clinical application in cardiac failure, mediastinal tumors, constrictive pericarditis, obstruction of vena cava and local venous obstruction from thrombosis, etc.; venographs showing various types of venous obstruction in the upper extremity with collateral circulation.

LOUIS B. LAPLACE, Philadelphia:

Cardiovascular Disease in Advanced Years: Exhibit of charts and specimens illustrating the characteristics of cardiovascular disease in persons beyond the seventh decade of life; physiologic handicap imposed by arteriosclerosis and the compensatory influence of arterial dilatation and tortuosity; characteristics of the electrocardiogram; "compensated" coronary sclerosis and the infrequency of angina pectoris; nature of the common forms of cardiovascular insufficiency in advanced years.

WILLIAM B. KOUNTZ, JOHN R. SMITH and ARTHUR S. GILSON, St. Louis:

Heart Sounds and Cardiac Vibrations: Exhibit showing graphic studies of heart vibrations as recorded by a cathode ray tube; heart sounds consist of at least two components and possibly a third one—the contraction of the muscle, the valve sounds and the flow of blood through the heart; analyses of normal heart sounds demonstrate vibrations of different frequencies, varying from two cycles a second up to 300 cycles a second; clinical aspect presents normal heart sounds as well as pathologic ones (cases in which there is definitely disease of the heart), coordinated with the electrocardiogram establishing curves in relation to the normal cycle of events occurring in the heart; apparatus evaluating the various frequencies caused by contractions of the heart, under both normal and pathologic conditions, and showing that, in hypertension and degenerative diseases of the heart, there is usually a definite prolongation of the first heart sound, although in listening to the heart adventitious sounds may not be heard. In certain forms of cardiac disease, waves appear in the vibrocardiographic tracings which evidence suggests are reflections of abnormal cardiac movement, and which may indicate anoxemia of the myocardium when other evidences of heart disease are lacking.

JOHN B. SCHWEBEL, JONAS WEISSBERG and VINCENT SILVESTRI, New York:

Trachea and Bronchi in Heart Disease: Exhibit of models, photographs and postmortem specimens, diagrams and descriptions showing the relationship of the trachea and bronchi to the heart in normal and abnormal states, with emphasis on the significance in various clinical states.

W. J. MACNEAL, MARTHA JANE SPENCE and MARIE WASELEN, New York:

Experimental Endocarditis Induced by Intravenous Inoculation of Streptococcus Viridans: Exhibit of hearts and some other organs of rabbits showing gross lesions of the disease; photomicrographs showing the structure of the lesions; hearts of patients from whom cultures of Streptococcus viridans were obtained; apparent influence of various factors on the character of the lesions.

BERNARD I. KAPLAN, Sing Sing Prison Hospital, Ossining, and Bellevue Hospital, New York:

Clinical Stethography: Exhibit of posters containing actual and photographic reproductions of heart sound tracings obtained

with the stethograph and with the electrocardiograph-stethograph, demonstrating the normal with its variations, sources of error, interpretation and records obtained in the presence of organic heart disease; posters describing the principles underlying the graphic recording of heart sounds with this instrument.

SIDNEY P. SCHWARTZ, New York, and ABRAHAM JEZER, Montefiore Hospital, Bronx, N. Y.:

Transient Ventricular Fibrillation: Exhibit of electrocardiograms showing the natural course of transient ventricular fibrillation in human beings during normal sinus rhythm, during transient auriculoventricular dissociation, and during established auriculoventricular dissociation; effects of epinephrine hydrochloride, digitalis bodies, quinidine sulfate, magnesium sulfate and rebreathing on such patients.

JOSEPH HARKAVY, New York:

Vascular Allergy: Exhibit presenting a clinical study of tobacco allergy by means of cutaneous tests with various tobacco extracts in thrombo-angiitis obliterans, migrating phlebitis, peripheral vascular disease associated with arteriosclerosis, coronary artery disease and angina pectoris; demonstration of antibodies to tobacco; demonstration that biopsies of positive cutaneous reactions showed perivascular eosinophilia diagnostic of allergic responses; experimental studies of tobacco allergy with production of gangrene in toes of male rats by intraperitoneal injection of tobacco and demonstration of sensitization of rats to tobacco by means of the Shultz-Dale technic; paroxysmal tachycardia in patients due to food and tobacco allergy; electrocardiographic changes in bronchial asthma with recurrent pulmonary infiltrations, eosinophilic polyserositis with biopsy studies.

PERIPHERAL VASCULAR DISEASE

JOHN B. LAGEN, WILLIAM J. KERR, E. F. CANNON and MAURICE SOKOLOV, University of California Hospital, San Francisco:

Postural Syndrome; Diagnosis and Treatment of Circulatory Failure Due to Obesity: Exhibit of wall charts and plaster models depicting the postural syndrome, showing the effects of excessive abdominal obesity on the cardiovascular system, and the therapy; syndrome outlined, showing how obesity, through mechanical factors, produces strain on the circulation and thus the various symptoms; diagrams showing normal and abnormal postures, and the consequent changes in the spinal curves, the position of the ribs and the diaphragm and heart and effects produced by these changes; therapy, including a specially designed belt which gives abdominal support without interfering with the respiratory motion of the diaphragm; silhouettes showing various patients before, during and after treatment.

M. C. WINTERNITZ, E. MYLON, L. L. WATERS, R. KATZENSTEIN and L. WOODRUFF, Yale University School of Medicine, New Haven, Conn.:

Studies on the Pathology of Vascular Disease: Exhibit of lantern slides and artist's drawings of cardiovascular and smooth muscle lesions occurring in dogs after bilateral renal artery ligation, bilateral nephrectomy and injection of crude kidney extracts, bilateral nephrectomy and injection of fractionated and control tissue extracts; the prolonged injection of kidney extracts in normal dogs; method of production of these lesions and their occurrence in different sites summarized in chart form; concomitant blood chemistry and pertinent clinical data; charts on the chemical methods of fractionation; demonstration of the Friedmanman oscilometer as used for taking indirect blood pressures in laboratory animals.

ROBERT R. LINTON, Surgical Laboratories of Harvard Medical School at the Massachusetts General Hospital, Boston, and WALTER S. ROGERS, Research Division, United Shoe Machinery Corporation, Beverly:

Thermotromuhr Method of Measuring Blood Flow and Its Application to Problems in Peripheral Blood Flow: Exhibit showing the construction of the apparatus; method in which it is used and calibrated, making it possible to determine the volume flow of blood in cubic centimeters passing through a blood vessel (artery or vein) at a given time; records and charts of experiments in peripheral blood flow, both experimental and in human beings.

IRVING S. WRIGHT, A. WILBUR DURYEE and GERALD H. PRATT, New York:

Treatment of Peripheral Vascular Disease: (1) Lymphedema—medical and surgical treatment illustrated by motion pictures, diagrams and photographs. (2) Arteriosclerosis—method of determining claudication time with demonstration of apparatus used; charts and photographs showing the results of the use of deproteinized pancreatic extracts in the treatment of intermittent claudication (clinical and experimental).

HUGH MONTGOMERY, MEYER NAIDE and NORMAN E. FREEMAN, Peripheral Vascular Clinic, University of Pennsylvania, Philadelphia:

Diagnostic Procedures in Peripheral Arterial Disease: Exhibit of motion pictures illustrating standard tests used in diagnosing arterial disease and in evaluating extent of circulatory deficiency; charts showing significance of tests for prognosis and treatment.

MAE FRIEDLANDER, SAMUEL SILBERT and WILLIAM BIEMAN, New York:

Changes in Circulation of Skin and Muscles of the Extremities Following Various Procedures: Exhibit of charts illustrating the changes that take place in the temperature of the skin and muscle tissues of the extremities following sympathetic paralysis, spinal anesthesia, injections of epinephrine, hypertonic salt solution, pancreatic tissue extract and other drugs; charts illustrating that the regulation of the circulation is not parallel in the skin and muscle tissues.

DAVID I. ABRAHAMSON and FANNY A. SENIOR, May Institute for Medical Research, Jewish Hospital, Cincinnati:

Plethysmographic Method for the Study of Blood Flow and Vascular Responses in the Extremities: Exhibit presenting (a) demonstration of the plethysmographic method for the determination of blood flow in the hand, forearm, leg and foot, appropriate plethysmographs being used; two extremities studied simultaneously on a subject; curves indicating rate of blood flow and vascular responses to various stimuli recorded on a kymograph with Brodie's bellows; (b) graph and actual curves to show the differences in blood beds, supporting the concept that the nervous control of the blood vessels in the distal portions of an extremity (hand) is different from that in the proximal portion (forearm); (c) charts and curves demonstrating the response of the blood vessels in the extremities to such procedures as the administration of nicotinic acid, histamine, alcohol, insulin, epinephrine, smoking and general anesthetics; (d) curves exemplifying blood flow and vascular responses in such abnormal states as thrombo-angiitis obliterans, hypertension and scleroderma.

HENRY A. SCHROEDER, Hospital of the Rockefeller Institute, New York:

Classification of "Essential" Hypertension: Exhibit showing that in a series of 250 cases of so-called essential hypertension four types are recognized: renal, nervous, endocrine, and arteriosclerotic, which differ in history, symptoms and findings; characteristics of each type, and a statistical analysis of each group, especially as regards differentiating criteria; significant observations in thirty cases of mild, early arterial hypertension.

Section on Surgery, General and Abdominal

The Section on Surgery, General and Abdominal, in addition to its other exhibits, is presenting a group of exhibits on cancer. The representative from this section to the Scientific Exhibit is Grover C. Penberthy, Detroit.

FRANK H. LAHEY, Boston:

Thyroid Diseases: Exhibit showing skeletal changes in thyroid disease; blood cholesterol in thyroid disease; the larynx in thyroid surgery; orbital decompression for progressive exophthalmos; carcinoma of the thyroid; myxedema; heart disease in hyperthyroidism; hyperthyroidism and diabetes; blood iodine studies in thyroid disease; anesthesia in thyroid disease, showing intracheal intubation.

ARNOLD S. JACKSON, Madison, Wis.:

Goiter and Other Diseases of the Thyroid Gland: Exhibit of models and charts on diagnosis and treatment of cretinism; maps and charts showing growth of cretinism and distribution of

cases reported in the United States; illustrations showing technic of thyroidectomy by electrosurgery for exophthalmic goiter; illustrations and models of the various types of goiter, their distinguishing characteristics and the methods of treatment; illustrations, charts and data on hypothyroidism and myxedema illustrating typical and atypical cases, signs, symptoms, methods of treatment and results; motion pictures of cretinism, diagnosis of various types of goiter and the technic of thyroidectomy.

WILLARD BARTLETT JR. and ROBERT W. BARTLETT, St. Louis:

Goiter: Exhibit of tables, charts and text presenting background, illustrations and clinical application of estimation of operative risk, breath-holding tests, blood amylase, continuous neutral bath, response of circulation to measured exertion, differential diagnosis from neurosis, fifteen year mortality study and abandonment of ligations; photographs, artist's drawings and text illustrating certain technical steps such as nerve block analgesia, combined anesthesia, lateral incision for two stage operation, pronounced tracheal distortion and sponge pressure dressing.

J. RUSSELL ELKINTON, MONROE T. GILMOUR and WILLIAM A. WOLFF, Pennsylvania Hospital, Philadelphia:

Control of Electrolyte and Water Balance in Surgical Patients: Exhibit of charts demonstrating the physiologic theory, methods, procedures and clinical results of a routine for controlling the serious problems of water and electrolyte balance that occur in surgical patients; routine based on a consideration of both electrolyte concentration, and changes in plasma volume as indicated by serial hematocrit values and plasma protein concentrations; methods and equipment simple enough for use in any clinic; results of the procedure shown by graphs from case histories of gastrointestinal drainage, infection, hemorrhage and severe burns.

THOMAS A. SHALLOW and KENNETH E. FRY, Philadelphia:

Results of Peritoneoscopic Examination: Exhibit of charts showing indications for peritoneoscopy with diagnostic accuracy and groups of cases suitable; photographs of lesions taken through the peritoneoscope; motion picture depicting the technic.

CHARLES S. WHITE, J. LLOYD COLLINS and JACOB WEINSTEIN, Washington, D. C.:

Evaluation of Stored Blood and Blood Serum: Exhibit of charts and photographs showing typing of blood by the centrifuge method; chemical and physical examination of stored blood; relative value of stored blood and blood serum with clinical follow-up; demonstration with a centrifuge.

NORMAN TREVES, Memorial Hospital, New York:

Significance of the Bleeding Nipple: Exhibit showing symptoms and physical changes, a moulage of the breast, a moulage of the appearance on transillumination, the gross and microscopic specimens and the treatment for the various lesions which produce a bloody discharge of the nipple; treatment in all instances is surgical.

R. K. GILCHRIST, Chicago:

Surgical Pathologic Studies of Carcinoma of the Rectum and Colon: Exhibit showing exact distribution of metastases among lymph nodes removed from surgical specimens of carcinoma of the rectum and colon as well as the manner of spread of the metastases through the lymph system; examples of metastasis in retrograde manner and the conditions which favor this; examples showing that where there is a double blood supply there is apt to be a double lymph drainage; correlation of grade and size of tumor and duration of symptoms to the presence of metastases; demonstrations of diverticula accompanying carcinomas and the complications resulting from them; cleared specimens showing the surgical anatomy of the large bowel and specimens and drawings showing the presence or absence of metastases outside the field of surgical resection.

LOUIS H. JORSTAD and BRUCE C. MARTIN, St. Louis:

Diagnosis and Treatment of Benign and Malignant Tumors of the Head and Neck: Exhibit of photographs, photomicrographs and legends showing (a) differential diagnosis and treatment of benign and malignant lesions of the soft tissues and osseous tissues of the head and neck; representative cases for

surgery, surface radium and interstitial radium are shown; (b) cosmetic and functional results obtained by reconstructive procedures (surgical and prosthetic); (c) resection of the lymph-bearing tissue of the neck, showing relationship of the particular zones of metastasis to the primary lesion and cosmetic and functional results.

GREGORY L. ROBILLARD, Brooklyn Cancer Institute, Kings County Hospital, ALFRED L. SHAPIRO and SIDNEY AUERBACH, Brooklyn:

Critical Evaluation of End Results in Routine Cancer Therapy: Exhibit of charts, photographs and gross specimens illustrating type incidence, modes of therapy and end results of cases; statistical correlation of this material, a cross section of an average tumor clinic, with cancer experience generally; analyses of major factors determining extent and type of treatment, reasons for failure and causes of death; total curability of cancers tending to early generalized metastasis as contrasted with localizing lesions characterized by slow local invasiveness and regional metastasis; potential life salvage; need for integrated programs of further clinical study and experimental investigation; limits of resectability in localizing malignant growths of neck, thorax, abdomen and pelvis.

LOUIS C. KRESS, Albany, N. Y.:

Cancer Control in New York State: Exhibit demonstrating the methods used for reporting cancer in New York State by the physician, pathological laboratory and the hospital with the reasons for reporting, establishment of tumor clinics throughout New York State in the general hospitals, operated and maintained by the staffs of these hospitals, portrayed by means of a map; organization of clinics described by means of statements and pictures; cancer program in New York State is to provide adequate care for the cancer patient, obtained through the staffs of the already existing general hospitals rather than in state owned institutions.

FRANK E. ADAIR and JOSEPH E. FARROW, Memorial Hospital, New York:

Breast Lesions: Exhibit of transparencies of photographs showing many of the different clinical types of breast cancer, not only in the gross but also in the microscopic appearance.

S. W. HARRINGTON, Mayo Clinic, Rochester, Minn.:

Carcinoma of the Breast: Exhibit presenting the different types of malignant conditions of the breast, carcinoma, Paget's epithelioma and sarcoma; different diagnostic, clinical and pathologic manifestations of the disease and the three, five, ten, fifteen and twenty year results of surgical treatment and the various factors which influence the prognosis such as the extent of the disease, grade of malignant condition and other constitutional diseases; different clinical manifestations of the disease, the operative treatment and results shown by moulages, photographs, drawings, statistics and motion pictures.

WILLIAM J. HOFFMAN, New York:

Treatment of Recurrent Cancer: Exhibit of transparencies illustrating procedures for treatment of recurrent and advanced carcinoma of the head and neck; plastic surgical operations for repair of defects; technic of radical dissection of cervical nodes; treatment of early and late radionecrosis following improper and accidental overdosage of radium and roentgen therapy.

A. H. BULBULIAN, Rochester, Minn.:

Improved Technic for Restoration of Facial Defects by Prosthesis with the Use of a Latex Compound: Exhibit shows results of restoration of facial defects, such as those resulting from the loss of the nose or an ear, by prosthesis. This type of restoration is recommended for cases in which correction by plastic surgery is not advisable owing to (1) local condition of the defect, (2) patient's general condition or age and (3) patient's financial circumstances which may prohibit hospitalization. It is of definite value to patients for psychologic as well as economic reasons. Demonstration of the steps of the technic of making such a restoration shown with actual material.

JAMES GRAHAM, Springfield, Ill.:

Treatment of Varicose Veins: Exhibit of models and transparencies illustrating the diagnostic methods employed in select-

ing the type of treatment; four classes of varicose veins used for therapeutic purposes; (1) varices of great saphenous vein with negative results with Trendelenburg test, (2) varices of great saphenous vein with singly positive results with Trendelenburg test, (3) varices of great saphenous vein and perforators with doubly positive results with Trendelenburg test, (4) varices of small saphenous; methods employed include the use of multiple local injections of sclerosing solutions and ligation of the saphenous vein at its origin combined with retrograde injection of the entire saphenous system through an inserted ureteral catheter.

HOWARD E. SNYDER, Winfield, Kan.:

Ambulatory Management of Fractures of the Lower Extremity: Exhibit consists of photographs of patients and their roentgenograms before, during and after treatment by an ambulatory method; fractures of the foot, ankle, leg and thigh are included; applied and unapplied models of a new type of walking iron; motion picture illustrating methods and results.

LEO M. ZIMMERMAN and HAROLD LAUFMAN, Chicago:

Evolution of Blood Transfusion: Exhibit of old books, historic transfusion apparatus, reproductions of contemporary illustrations, explanatory legends, models of transfusion operations and motion picture demonstration of blood testing and transfusion, showing panoramic review of the development of blood transfusion from its earliest beginning, its present status and a projection of its possible future growth.

E. S. GURDJIAN, Detroit:

Surgical Management and Surgical Pathology of Acute Head Injury; Problem of Fluid Intake, Sedatives and Narcotics: Exhibit showing the surgical management and the surgical pathology of acute head injury based on numerous operations and autopsies; management of depressed fractures, acute and chronic subdural hematoma, extradural hemorrhage, hydroma of the brain and operative treatment of some of the complications of head injury pictorially described; effect of isotonic fluids on the spinal fluid pressure in acute head injury; effect of morphine, phenobarbital sodium, sodium bromide, chloral hydrate, pentobarbital sodium and codeine sulfate on spinal fluid pressure in cases of acute head injury.

MAX THOREK, Cook County Hospital and American Hospital, Chicago:

Electrosurgical Obliteration of the Gallbladder: Exhibit showing the results of a study of electrosurgical obliteration of the gallbladder; in 15 and 25 per cent of patients dilated capillaries or bile ducts are found in the gallbladder bed; classic cholecystectomy opens these and leakage and other undesirable consequences result; to obviate these the posterior gallbladder wall is left in situ and is transformed by electrosurgery into a sterile, dry hyalized inert tissue tampon; the falciform ligament is superimposed over the narrow ridge of coagulated tissue resulting after its borders have been approximated; the total mortality is 0.5 per cent.

JAMES F. KELLY and D. ARNOLD DOWELL, Department of Radiology, Creighton University School of Medicine, Omaha:

Roentgen Treatment of Acute Peritonitis, Gas Gangrene, Surgical Mumps and Other Infections: Exhibit of clinical data showing the value of the roentgen ray in acute inflammations with special emphasis on the diseases or complications which are a common source of worry for the surgeon and often fatal for the patient; lowered mortality and morbidity are marked while total radiation used is well below an erythema effect and the use of the roentgen ray adds no additional hazards for the patient or puzzling reactions for the clinician.

BERNHARD STEINBERG, Department for Medical Research, Toledo Hospital, Toledo, Ohio:

Peritoneal Exudate—A Guide for Diagnosis, Prognosis and Treatment: Exhibit showing that various peritoneal conditions may be recognized by the appearance of the various elements in the exudate; treatment may be guided by the successive peritoneal pictures; quantitative relationship between the cellular elements and the micro-organisms determines the prognosis;

inflammatory conditions differentiated from noninflammatory; inflammation of the upper part of the abdomen may be recognized and separated from those of the lower abdominal cavity.

THOMAS J. O'KANE and FREDERICK W. WILLIAMS, New York:

Lesions of the Lower Extremities in Diabetes: Exhibit of charts of results in nine years' work; pathologic studies of vessels; bacteriologic studies of infections; motion picture of the surgical technic used in amputations in diabetic extremity disease; rationalization of the confused clinical concept "diabetic gangrene" by applying the knowledge of peripheral vascular disease and infection; lesions of the lower extremities in diabetes classified clinically, without the use of mechanical instrumentation.

CARL L. HOAG, JOHN B. SAUNDERS, HAROLD H. LINDNER and JOHN M. MOORE, Department of Surgery and Anatomy, University of California Medical School, San Francisco:

Jejunoplasty for Obstruction Following Gastro-Enterostomy or Gastric Resection: Exhibit of transparent specimens, charts, drawings and photomicrographs illustrating the technic and indication for jejunoplasty, together with specimens showing the migration and effect of absorbable and nonabsorbable sutures in the anastomosis; transparencies illustrating the circulation in relation to such anastomoses.

ROY ERNEST BRACKIN, Kenilworth, Ill.:

Studies on the Transplantation of the Ureter to the Rectosigmoid: Experimental and Clinical: Exhibit showing the results, in the experimental animal and in patients, of a new method of transplantation of the ureter to the colon, incorporating peritoneum for the first time and without dissection of the periureteral tissues; advantages of the changes in technic which simplify the procedure depicted by photographs, photomicrographs and gross specimens of uretero-intestinal openings, kidneys, ureters and bladders, roentgenograms of injected specimens and intravenous pyelograms; steps in the development of the method outlined in photographs and charts of typical, controlled experiments; mechanism of the development of ureteral stricture, urinary stasis, hydronephrosis and renal sepsis.

ARTHUR H. BLAKEMORE and BARRY G. KING, New York:

Electrothermic Coagulation of Aortic Aneurysms: Exhibit showing that there is abundant evidence that a completely clotted sacular aneurysm neither ruptures nor grows and that induction of clotting in aneurysms is dependent on two factors: (1) the velocity of blood flow through the aneurysm, which may vary as much as 300 per cent in aneurysms of similar size but having openings of different size; (2) the presence of an adequate clot stimulating surface; exhibit presents a method of wiring aneurysms in which the velocity of blood flow is used as an index of the amount of wire necessary to impede the velocity of blood flow to a point at which mass clotting is known to take place; heating the wire within an aneurysm to 80 C. results in the deposit of a protein coagulum on the wire, thus affording an excellent clot stimulating surface; heating the wire causes inflammation in the sac wall which promotes adherence and organization of the clot deposited.

FRANK L. MELENEY and ELIZABETH SPOFFORD, New York:

Chronic Undermining Burrowing Ulcers and Progressive Bacterial Synergistic Gangrene Before and After Treatment with Zinc Peroxide: Exhibit illustrating the three types of chronic undermining burrowing ulcer: the postoperative group, the lymphatic gland group and the secondary contamination group; lesions shown as they were on admission to the hospital and again when the ulceration had completely healed. Progressive bacterial synergistic gangrene illustrated by a model of an extensive lesion of the chest wall as it appeared on admission to the hospital and after complete healing; same type of lesion shown by a model of the excised lesion occurring on the abdominal wall. Photographs illustrate the various stages in the progress of healing.

AMERICAN MEDICAL ASSOCIATION, Chicago:

Archives of Surgery: Exhibit presenting the outstanding points of merit of the ARCHIVES OF SURGERY.

Section on Obstetrics and Gynecology

The representative to the Scientific Exhibit from the Section on Obstetrics and Gynecology is H. Close Hesselstine, Chicago.

HENRY C. FALK, New York:

Conservative Treatment of Recurrent Salpingitis—Tubal Resection: Exhibit of drawings and enlarged photomicrographs showing the path of the infecting organisms in salpingitis, the pathology of the infected tube, the technic of tubal resection and how it prevents reinfection, with a résumé of the results in cases treated by this method.

ROBERT T. FRANK, MORRIS A. GOLDBERGER, GERTRUDE FELSHIN and EMANUEL KLEMPNER, New York:

Sex Hormones, Research and Clinical Application: Exhibit showing the technic of bio-assay in blood and urine of sex hormones, including gonadotropic, estrogens, progesterone and androgens; graphic presentation of results obtained in normal cases, amenorrhea, sterility, menopause, menorrhagia and metrorrhagia, premenstrual tension, premature puberty, adrenocortical syndrome, pseudohermaphroditism, hirsuties and alopecia; various endocrine cases studied because of their general interest, including pituitary tumors, Simmond's disease, Addison's disease, parathyroid (overfunction and underfunction), etc.; results of treatment of various conditions.

E. D. PLASS and RAY E. TRUSSELL, University Hospital, Iowa City:

Trichomonos Vaginalis: Pathogenicity and Physiology of a Pure Culture: Exhibit showing a pure culture of *Trichomonas vaginalis*, which has been maintained since June 1939; results of experimental inoculations of human and animal vaginas; physiology of the protozoan, with relation to the pH and medium components best suited to optimum growth, the utilization of carbohydrates, etc.

NORMAN F. MILLER and ALLAN C. BARNES, University of Michigan Hospital, Ann Arbor:

Partial Urinary Incontinence in the Female: Study of Its Cause and Treatment: Exhibit presenting an investigation of the fundamental principles involved in the problem of diurnal urinary incontinence in women; demonstration of the anatomy, pathologic physiology and proper diagnosis of the condition, with a review of the surgical procedures available for its correction.

NICHOLAS M. ALTER, Margaret Hague Maternity Hospital, Jersey City, N. J.:

Hydatidiform Mole and Chorionepithelioma (Pothogenesis): Exhibit of transparencies, illustrations, charts and specimens showing the hydatidiform mole and chorionepithelioma.

F. H. FALLS, University of Illinois, and CHARLOTTE S. HOLT, Illinois State Department of Public Health, Chicago:

Ectopic Pregnancy: Exhibit of series of bas relief models depicting various types of ectopic pregnancy, such as interstitial, ovarian, isthmic, ampullary and secondary abdominal, a colpotocentesis of a pelvic hematocoele, broad ligament hematoma, a fibroid uterus causing compression of the tube and a bilateral tubal pregnancy; a model showing the story of normal fertilization and nidation and sites of ectopic implantation, water color illustrations of views of the aforementioned types of ectopic pregnancy as seen at operation by the surgeon; charts outlining etiology, diagnosis, treatment and mortality statistics; transparencies of photomicrographs of each type and roentgenogram of a ruptured interstitial ectopic pregnancy with a baby weighing 5 pounds (2,268 Gm.).

CHARLES A. GORDON, Brooklyn:

Committee on Maternal Welfare of the Medical Society of the State of New York: Exhibit of charts showing character and progress of maternal welfare work in the county medical societies of the state; printed material for distribution.

S. H. GEIST, U. J. SALMON and R. I. WALTER, New York:

Studies in the Implantation of Synthetic Ovarian (Estrogenic) Hormone in the Treatment of the Menopause Syndrome: Exhibit of charts and photomicrographs depicting the stimulating effect of the implanted hormone on the uterus and vagina at varying intervals after the implantation and the correlation of these morphologic changes with the inhibitory effect

of the hormone on the pituitary (as measured by excretion of the gonadotropic hormone) and amelioration of the symptoms; results in a group of surgical castrates that had prophylactic implantation at the time of bilateral oophorectomy, demonstrating the ability of the implanted hormone in preventing the involutional changes in the vagina and the abnormal excretion of gonadotropic hormone and, concomitantly, the menopause symptoms from developing; rate of absorption; duration of effectiveness of the implanted hormone; comparative study of the relative effects of the crystals as opposed to the pellets; histologic study of the excised tissues surrounding the implanted hormone to determine whether any abnormal proliferation occurred locally.

A. C. IVY, D. N. DANFORTH and R. J. GRAHAM, Chicago:

Birth Process Revealed by Frozen Sections of Maccus Rhesus: Exhibit of mounted specimens of frozen sections of monkeys made during the various stages of labor and during the puerperium; drawings of the respective specimens with dimensions and protocols; sections showing clearly the dilatation of the cervix, formation of the uterovaginal canal, retraction of the cervix, the lower and upper uterine segments, metrostatic adjustments of the uterine wall and involution of the uterus; the results of microscopic studies.

I. C. RUBIN, New York:

Uterotubal Insufflation: Exhibit of illustrations, roentgenograms, charts, insufflation apparatus, motion pictures and statistical figures to give a comprehensive idea of the scope of uterotubal insufflation.

Section on Pediatrics

The representative to the Scientific Exhibit from the Section on Pediatrics is Arthur F. Abt, Chicago. In addition to other exhibits, the section is presenting an exhibit symposium on nutrition.

WILLIAM FIRTH WELLS, University of Pennsylvania School of Medicine, and MAX B. LURIE, Henry Phipps Institute, Philadelphia:

Experimental Air-Borne Disease: Exhibit demonstrating an apparatus for the study of experimental air-borne disease and natural, quantitative, respiratory contagion of tuberculosis; quantitative features of utmost importance in studies of experimental pathology have been proved for the apparatus; penetration of droplet nuclei to all the lobes establishes this quantitative method of lung inoculation; exhibit demonstrates quantitative relationship between dosage and pathologic manifestation of tuberculosis and destruction of tubercle bacilli in air by ultraviolet light together with quantitative technic of experimentation.

F. M. POTTENGER JR. and D. G. SIMONSEN, Pottenger Sanatorium, Menlo Park, Calif.:

Asthma—Experimental Consideration: Exhibit of charts, roentgenograms and photographs of cats showing the clinical symptomatology of an allergic like nature, including asthma, produced experimentally by heat-treatment of the food, and compared with normal animals on a diet that is not heat treated; roentgenograms, photographs and charts of children suffering from asthma showing a similar change from normal standards; motion pictures and slides showing the details of soft tissues and functional changes in cats, with comparison of the normal and abnormal cats as noted by their actions in the pens.

IRVING J. WOLMAN, Children's Hospital, Philadelphia:

Infant Feeding and the Curd Tension of Milk: Clinical and Laboratory Data: Exhibit of laboratory apparatus, charts, illuminated boxes and displays of milk curds illustrating theoretical considerations on coagulation of cow's milk within the human stomach, significance of the curd tension test and in vitro methods for evaluating digestibility of dairy modified milks; investigations on homogenized milk with definitions, clinical data from large scale studies on infant feeding, description of processes used (sound wave oscillator, mechanical homogenization) and new methods of laboratory control.

ABRAHAM LEVINSON, Chicago:

Cerebral Manifestations in the Newborn: Exhibit of charts, lantern slides and specimens outlining the etiology, symptomatology and treatment of cerebral manifestations of the newborn.

The following conditions are included: anoxemia, cerebral edema, cerebral hemorrhage, cerebral agenesis, acute infections, tetany and hypoglycemia.

J. HARRY MURPHY, Omaha:

Comparative Epidemiology of Encephalitis and Poliomyelitis (Note—These are Equine Encephalomyelitis and Acute Anterior Poliomyelitis): Exhibit of spot maps showing occurrence of equine encephalomyelitis in counties adjacent to Omaha in 1937, 1938 and 1939 and of occurrence of cases of acute anterior poliomyelitis in Omaha and counties in 1923 to 1939; maps superimposed, representing a topographic analysis of the terrain of Omaha and immediately adjacent areas; comparison indicates common points of epidemiology of the two diseases.

THEODORE O. ELTERICH, Pittsburgh:

Stunted Growth in Childhood; An Inquiry into Some of Its Causes: Exhibit of photography, roentgenograms and case histories illustrating conditions causing pronounced stunting in the growth of children; review of the nonendocrine as well as of the endocrine causes of this manifestation; information on congenital heart disease, prematurity, Banti's disease, congenital hemolytic anemias, etc., which may cause a failure of the child to develop properly.

PHILIP M. STIMSON, New York:

Pulmonary Tuberculosis, Primary and Secondary Infections, from Onset to Cure: Exhibit of roentgenograms covering the life of a boy from 7 to 16 years, showing first a localized pleurisy, then in succession a Ghon tubercle near the right base, some hilar adenitis, a faint infiltration at the left apex, cavity formation, filling in of the cavity and an apparent return to normal conditions with disappearance of both the Ghon tubercle and the cavity.

HAROLD W. DARGEON, Memorial Hospital, New York:

Cancer in Childhood: Exhibit of charts showing topographic distribution of childhood cancer; mortality, compared with other children's diseases; photographs of the more common varieties of malignant tumors with legends discussing diagnosis, treatment and prognosis; pathologic specimens of more common types of childhood cancer.

F. W. SCHLUTZ and ELIZABETH M. KNOTT, Bobs Roberts Memorial Hospital, The University of Chicago, Chicago:

Vitamin B: Exhibit of graphs illustrating factors affecting the thiamin requirements in children; (1) vitamin B₁ balance studies on infants and children; (2) case studies of specific types of persons with differing needs for the vitamin; (3) group studies of the effect of the vitamin on appetite and on growth; (4) investigation of the vitamin B₁ content of milk (pasteurized, evaporated and breast), of infant formulas, of representative diets for young children and of suitable thiamin supplements. An exhibit of young rats showing how various factors can affect the thiamin requirement of children.

SMITH FREEMAN and WILLIE MAE CLIFTON, Chicago:

Vitamin D, Calcium and Phosphorus Metabolism: Exhibit of roentgenograms showing the radiologic changes which occur in the bones of children with active and healing rickets, renal rickets, hyperparathyroidism, osteopetrosis, celiac disease, fragilitas ossium, poliomyelitis and rheumatoid arthritis; photomicrographs illustrating the histologic changes characteristic of some of the conditions mentioned; charts presenting blood and excretory findings on the calcium, phosphorus and phosphates of some of the conditions mentioned and the normal requirements of vitamin D, calcium and phosphorus; results of experimental studies showing the effect of gastrectomy and the effect of a low phosphorus diet on the bones of puppies.

NUTRITION OF CHILDREN

JOHN B. LUDDEN and ELIZABETH MACLEATHEN, Department of Medicine, New York Postgraduate Medical School and Hospital, New York:

Vitamin C Deficiency: Diagnostic Methods and Therapy: Exhibit of charts and photographs illustrating the requirements of vitamin C; conditions predisposing to deficiency; diagnostic

methods, including the capillary fragility tests, determination of ascorbic acid in blood plasma and urine, and saturation tests; effect of renal retention on saturation tests with a formula for compensation of this factor of error; influence of vitamin C therapy on blood level, saturation tests and clinical picture of certain gastrointestinal and vascular disorders.

ICIE MACY-HOOBLER, Detroit:

Chemistry of Growth and Nutrition in Childhood: Exhibit of charts and transparencies showing the environment of investigations of the mineral metabolism of twenty-two normal children; data upon their growth, blood chemistry, nutritional state, metabolism of twelve inorganic elements and six organic compounds, skeletal development, gastrointestinal motility, and other physiologic observations, illustrated with charts showing accumulation of nitrogen and mineral elements by one subject during 100 days at age 4, 225 days at age 8, and fifty days at age 12.

W. W. WADDELL JR., DUPONT GUERRY III, and McLEMORE BIRDSOGE, University of Virginia Hospital, Charlottesville, Va.:

Role of Vitamin K in the Etiology, Prevention and Treatment of Hypoprothrombinemia and Hemorrhage in the Newborn: Exhibit of charts demonstrating the role of vitamin K in the etiology, prevention and treatment of hypoprothrombinemia and hemorrhage in the newborn.

DOROTHY H. ANDERSEN, HILDA BRUCH, ALFRED FISCHER, MURRAY B. GORDON, JOSEPHINE KENYON, BELA SCHICK, WILLIAM SCHONFELD, ABRAHAM B. SUSMAN, ANNE TOPPER and RICHARD WAGNER, Columbia University, Long Island Medical College, Mount Sinai Hospital, New York, and Deaconess Hospital, Boston:

Endocrines in Relation to Nutrition: Exhibit showing data on thyroid deficiency and pituitary disturbances and charts; data on the use of the growth hormone and a special nutrition chart; work on pathologic studies of the pancreas in condition simulating celiac disease; data to illustrate the endocrine basis of obesity in children; cases illustrating weight loss in children on an endocrine basis; data showing that if diabetic pregnant women are treated with estrogenic substances the newborn mortality is much lower than among untreated women; graphs showing the growth of diabetic children, studies of puberty in males.

CHILDREN'S BUREAU, Washington, D. C.:

Nutrition in Relation to Growth and Development of Children: Exhibit of roentgenograms compared with histologic sections of bones from cooperative studies on the diagnosis of rickets and scurvy being made at Johns Hopkins Hospital by the Pediatrics Department and the Children's Bureau, U. S. Department of Labor; vitamin C deficiency among school children in northern Maine, from studies of the Maine State Health Department and Agriculture College of State of Maine and the Children's Bureau U. S. Department of Labor; relation of physical status of school children to their home environment, from studies by Yale University, Institute of Human Relations, and the Department of Pediatrics of the Medical College, New Haven Board of Education, and the Children's Bureau, U. S. Department of Labor.

Section on Laryngology, Otology and Rhinology

The representative to the Scientific Exhibit from the Section on Laryngology, Otology and Rhinology is Daniel S. Cuning, New York.

SAMUEL COHEN, Philadelphia:

Plastic Surgery of the Nose: Exhibit of casts, pictures, explanatory charts and motion pictures showing plastic surgery of the nose in various stages.

C. R. STRAATSMAN, New York:

Plastic Surgery: Exhibit consists of photographs and casts depicting various plastic procedures and end results.

ANDREW A. EGGSTON, GEORGE J. RIGHTER and ROBERT L. FELDMAN, New York:

Petrositis, Nasal Sinusitis and Laryngeal Carcinoma: Exhibit showing model of human temporal bone; serial sections (micro-

scopic) of larynx, petrous portion of temporal bone and eye; carcinoma of larynx (gross specimens); photomicrographs showing pathologic changes of nasal sinusitis.

MARVIN F. JONES, New York:

Preparation of Temporal Bones for Pathologic Examination: Exhibit presenting the technic of preparing bones for pathologic examination; microscopes and microprojector for demonstration of specimens.

G. ALLEN ROBINSON, New York:

Tumors of the Head and Neck: Exhibit showing various types of neoplasms of the head and neck and indicating the method of treatment, such as surgery alone, irradiation alone, and a combination of irradiation and surgery (carcinoma of the nasal sinuses); technic and dosage of radium and roentgen ray therapy.

CHEVALIER L. JACKSON and FRANK W. KONZELMANN, Philadelphia:

Cancer of the Larynx; Diagnosis and Treatment: Exhibit of models of the head and neck into which may be inserted the laryngeal mirror and the direct laryngoscope, in order to demonstrate and contrast with each other, indirect and direct laryngoscopy with particular reference to early diagnosis; mountings illustrating operative techniques; specimens and photographs in color illustrating the gross and microscopic pathologic changes of cancer of the larynx; demonstration of preparation and histologic study of biopsy material; motion pictures in color illustrating diagnosis and treatment.

COUNCIL ON PHYSICAL THERAPY, AMERICAN MEDICAL ASSOCIATION, Chicago:

Audiometers and Hearing Aids: Exhibit demonstrating the component parts and the function of audiometers and hearing aids.

Section on Preventive and Industrial Medicine and Public Health

The representative to the Scientific Exhibit from the Section on Preventive and Industrial Medicine and Public Health is Paul A. Davis, Akron, Ohio.

O. J. FARNES, Desert Sanatorium, Tucson, Ariz., and MILDRED T. WOOLLEY, Charleston, W. Va.:

Coccidioidomycosis, Some Clinical and Epidemiologic Aspects: Exhibit of charts showing clinical picture, laboratory and diagnostic features; bacteriologic cycle of *Coccidioides immitis*; incidence of positive cutaneous reactors in various regions of the country; selected case records with photographs of roentgenograms to demonstrate typical lesions of the lung; autopsy specimens showing typical lesions and resemblance to tuberculosis; guinea pigs mounted in specimen jars to show distribution of coccidioidal lesions and method of diagnosis by inoculation.

CARL F. JORDAN, Iowa State Department of Health, Des Moines, E. F. WALLER and G. O. HENDRICKSON, Iowa State College, Ames, Iowa:

Tularemia: Exhibit presenting information pertaining to the occurrence of tularemia in the various states during the past decade; species of animals that serve as sources of infection, and a habitat group; pathologic specimens from susceptible animals and ectoparasites regarded as playing a part in the spread of infection among animals; charts presenting epidemiology, including the usual methods of transmission of infection from animals to man.

M. BERNARD BRAIDY, S. WERLIN and MAURICE LENARSKY, Willard Parker Hospital, New York:

Rapid Methods for the Diagnosis of Diphtheria: Exhibit describing the method and giving results obtained with the swabbing of the membrane with potassium tellurite according to the Manzullo technic; comparison of the tellurite results with four hour rapid cultures and Loeffler cultures in diphtheria cases and controls; photomicrographs from stained smears of four hour cultures and Loeffler cultures illustrating less contamination in the rapid method and morphologic characteristics of the bacilli; charts showing importance of rolling the swab in making slide preparations; culture tubes for rapid (four hour) method.

JOHN R. PAUL and JAMES D. TRASK, Yale University School of Medicine, New Haven, Conn:

Rurol Epidemic of Poliomyelitis; Clinical and Geographic Features: Exhibit illustrating methods of detecting the virus in human stools and in urban sewage; the application of these newer tests in studies on the clinical epidemiology of poliomyelitis during an outbreak which occurred in southeastern Connecticut in the summer of 1939, with a picture and map showing the site where the epidemic started, and where it subsequently spread.

L. S. YLVIKAKER, C. E. KIESSLING and H. B. KIRKLAND, Prudential Insurance Company, Newark, N. J.:

Acute Respiratory Infections: Exhibit showing that these have grave potentialities, including pneumonia, in the prevention of which little has been accomplished, although diagnosis and therapy have been revolutionized. Roentgenograms illustrate this complication in so-called ordinary colds and emphasize the necessity of closer observation during and after recovery.

JESSE G. M. BULLOWA, VERA DOLGOPOL, HAROLD HOBART, IRVING F. KLEIN, JEROME L. KOHN, LUCY MISHULOW, HERSCHEL J. RUBIN and MANFRED WEICHEL, Willard Parker Hospital, New York:

Recent Studies in Pertussis—Diagnosis, Immunity, Pathology and Treatment: Exhibit describing a mouse protection test that can be readily utilized to test for protective antibodies on serum of patients with pertussis and those immunized against pertussis; pathologic complications in pertussis with a special study of pertussis encephalopathy and of the respiratory tract; studies on new cutaneous tests using a special antigen; complement fixation studies; results of various modes of treatment of both uncomplicated pertussis and pertussis complicated with pneumonia with various antigens, specific pneumococcus serums, sulfapyridine and pertussis convalescent serums; value of oxygen therapy and frequent transfusions in the treatment of pertussis pneumonia.

W. H. WRIGHT, National Institute of Health, Washington, D. C.:

Public Health Aspects of Trichinosis: Exhibit of pictorial and graphic information concerning the life cycle of the trichina parasite, *Trichinella spiralis*, its mode of transmission, the chief sources of infection in swine, incidence of the parasite in man, distribution of cases of clinical trichinosis, symptomatology and differential diagnosis and methods advocated for the control of the disease; demonstrations showing trichina larvae in muscle and methods of isolating living larvae by artificial digestion of muscle and recovery in the Baermann apparatus.

WILLIAM M. KINNEY, Jasper County Tuberculosis Hospital, Webb City, Mo.:

Sources of Error in Diagnosing Silicosis: Exhibit of chest roentgenograms together with photographs of postmortem specimens of lungs of hard rock miners showing the difficulties encountered in making the differential diagnosis between uncomplicated silicosis, silicotuberculosis and pulmonary tuberculosis without silicosis in these men.

R. R. SAYERS, Division of Industrial Hygiene, National Institute of Health, U. S. Public Health Service, Washington, D. C.:

Industrial Absenteeism Recording: Exhibit showing a graphic representation of a proposed plan for industrial absenteeism recording; graphic presentation of industrial morbidity experiences.

CHARLES WALTER CLARKE, American Social Hygiene Association, New York:

Control of Gonococcal Infections: Exhibit presenting new scientific and administrative facts and points of view regarding the epidemiology, diagnosis, treatment and control of gonococcal infections; program of public health measures for combating gonorrhea.

COUNCIL ON INDUSTRIAL HEALTH, American Medical Association, Chicago.

Silicosis: Exhibit of charts, transparencies and specimens showing the causes, prevalence, pathology and prevention of silicosis.

Section on Gastro-Enterology and Proctology

The representative to the Scientific Exhibit from the Section on Gastro-Enterology and Proctology is Sara M. Jordan, Boston.

MOSES EINHORN, Bronx Hospital, New York:

Proctosigmoidoscope and Simultaneous Gastrointestinal Aspirator: Exhibit showing a proctosigmoidoscope with a review of the American contribution to the development of the instrument (1895-1940); and a simultaneous gastrointestinal aspirator, with a review of its use in gastro-enterology and postoperative abdominal surgery.

MATTHEW WALZER, IRVING GRAY, MAX HARTEN, DAVID M. GRAYZEL, SAUL F. LIVINGSTON and JOSEPH H. FRIES, Jewish Hospital, Brooklyn:

Allergy of the Abdominal Organs (Experimental Studies in the Human Being and in the Rhesus Monkey): Exhibit of charts, photographs, photomicrographs and motion pictures indicating the experimental technic used in the production of allergic reactions in passively sensitized mucous membranes of the ileum, colon and rectum of human beings; with an essentially similar technic an allergic reaction has been produced in the various organs of the rhesus monkey, e. g., stomach, gallbladder, intestine and peritoneum; histologic studies; radiologic studies of the gastrointestinal tract of human beings during the induced allergic reactions.

JEROME M. LYNCH and G. JOHNSON HAMILTON, New York:

Cancer of the Rectum and Sigmoid: Exhibit of charts, drawings, transparencies and motion pictures showing cases of carcinoma of the rectum and sigmoid used as a basis for determining the common sites of metastasis and the paths by which they spread; an operation described which plans to remove not only the primary growth but the tissues which are the common sites of recurrence as far as they can be surgically attacked.

HARRY E. BACON, Philadelphia:

Anorectal Operative Procedures with Special Reference to the Avoidance of Pain: Exhibit of photographs, moulages and colored motion pictures showing a series of operative procedures for hemorrhoids, mucous prolapse, fissure and fistula with the exact technic for each procedure, with means by which pain is diminished.

MANFRED KRAEMER, Newark, N. J.:

Peptic Ulcer Therapy (Studies with a New Antacid—Magnesium Trisilicate): Exhibit of charts showing advantages and disadvantages of antacids usually employed in treatment of peptic ulcer; samples of various antacids showing relationship of weight to volume; neutralization and absorption curves for magnesium trisilicate and other magnesium silicates; outline of management of peptic ulcer patient using magnesium trisilicate; summary of clinical study on patients; photographic reproductions of roentgenograms showing changes in peptic ulcer under therapy.

RUSSELL S. BOLES, H. E. RIGGS and J. O. GRIFFITHS, Philadelphia:

Circulatory Factors in Production of Peptic Ulcer: Exhibit of transparencies of photomicrographs demonstrating various states in formation of acute focal lesions of the stomach; charts demonstrating etiology of acute lesions of gastric mucosa; graphs showing ratio of involvement of brain, liver and kidney in acute lesions of gastric mucosa.

DAVID J. SANDWEISS, M. H. F. FRIEDMAN, H. C. SALTZSTEIN and A. A. FARBMAN, Detroit:

Protective Factors in Normal Urine Against Peptic Ulcer: Exhibit of photomicrographs of healing ulcers in Mann-Williamson dogs treated with extracts of urine from normal nonpregnant women; charts showing the inhibitory effects of urine extract on gastric secretion and gastric motility in dogs; demonstration of a method for the bio-assay of the gastric secretory depressant; charts showing the effect of urine extract on secretions other than those from the stomach; data on the effect of urine extract on other functions of the body; charts showing the effect of urine extracts on gastric secretion of healthy persons and of peptic ulcer patients; preliminary observations on the immediate clinical effect of urine extract on sixty ulcer patients.

WILLIAM A. SWALM and LESTER M. MORRISON, Philadelphia:

Chronic Gastritis: Exhibit presenting (1) diagnosis: clinical features, gastroscopy, roentgenology and gastric analysis; (2) pathogenesis: relationship to gastric ulcer (surgical and pathologic illustrations), relationship to gastric cancer and relationship to anemias; (3) correlation: gastroscopic study and pathologic and histologic examination; (4) treatment: systemic, dietary, medicinal, physical therapy and special.

ALLAN L. COHN, ALFRED WHITE and RUBIN GOLD, San Francisco:

Gastroscopic Studies: Exhibit demonstrating the clinical value of gastroscopy with the flexible (Schindler) gastroscope; cases of gastric pathology as viewed through gastroscopes; gastroscopic views made of plastic material showing pathologic changes; complete studies consisting of roentgenograms, colored drawings of resected stomachs, photomicrographs and colored gastroscopic views; subjects presented are early diagnosis of cancer, differential diagnosis of benign and carcinomatous ulcer, several types of gastritis, granuloma of the stomach and phyto-bezoar.

ZACHARIAS BERCOVITZ and M. CHRISTENSEN, New York:

Differential Diagnosis of Colitis: (a) Cellular Exudate Studies of Bowel Discharges (b) Colored Photographs Through the Sigmoidoscope: Exhibit demonstrating the method of examination of specimens of bowel discharges for cellular exudates with Loeffler's methylene blue as a wet coverslip preparation; photomicrographs, in color and in black and white, of various types of cellular exudates of bowel discharges and the relationship to various types of pathologic conditions of the bowel including chronic ulcerative colitis, amebic and bacillary dysentery, carcinoma of the bowel and venereal lymphogranuloma; photomicrographs demonstrating the differential diagnosis of amebic and bacillary dysentery on the basis of cellular exudate studies and the numerous pitfalls in the diagnosis of amebiasis showing the various types of cells which can be confused with *Endamoeba histolytica*.

E. G. WAKEFIELD and M. T. FRIEDEL, Mayo Foundation, Rochester, Minn.:

Ileocecal Valve in Man: Its Development and Anatomy: Exhibit demonstrating by dried and fixed specimens of embryonic and adult ileocecal junctions that the ileocecal valve in man is an anatomic structure which functions mechanically; it may be competent or incompetent, depending on its developmental perfection.

A. H. LOGAN, P. W. BROWN, J. A. BARGEN, H. M. WEBER, L. A. BUIE, H. H. BOWING, A. H. BAGGENSTOSS, C. F. DIXON, J. deJ. PEMBERTON and C. W. MAYO, Mayo Clinic, Rochester, Minn.:

Polyps of Rectum and Colon: What Can Be Done About Them: Exhibit illustrating general facts pertaining to the occurrence, family and clinical histories and physical examinations of patients who have polyps of the rectum and colon; diagnosis of polyps of the rectum and colon made by proctoscopic and roentgenologic examination; data pertaining to these diagnoses, also types, location and general gross and histologic appearance of polyps of rectum and colon; treatment of polyps of the rectum and colon by fulguration, transcolonic excision, segmental resection, ileosigmoidoscopy, combined with fulguration and resection of the colon; radium therapy employed in selected cases.

Section on Ophthalmology

The section exhibit committee of the Section on Ophthalmology consists of Georgiana Dvorak Theobald, Oak Park, Ill., chairman; Algernon B. Reese, New York, and Derrick Vail, Cincinnati.

MILTON L. BERLINER, New York:

Bionicroscopy of the Anterior Segment of the Eye: Exhibit of original paintings of unusual conditions occurring in anterior segment of the living eye as seen by biomicroscopy.

P. J. LEINFELDER and LEE ALLEN, University Hospital, Iowa City:

Ophthalmologic Neuro-Anatomy: Exhibit of colored stereoscopic drawings presenting the anatomy of the visual pathway

and oculomotor system; relationships of the visual pathway; blood vessels and veins of the base of the brain; internal structures of the brain stem.

JOSEPH C. GEMEROY, Henry Ford Hospital, Detroit:

Stereoscopic Photographs of the Eye: Exhibit of colored stereoscopic photographs of lesions of the lids, conjunctiva, cornea, anterior chamber and lens, with brief histories.

ROBERT K. LAMBERT, New York:

Significant Structural Features of the Ocular Circulation: Exhibit of photographs, photomicrographs, drawings, paintings and transparencies showing serial sections of eyes, including orbital contents, stained with differential stains; study of the circulation; comparison photographs showing normal and diseased vessels and vessels of other organs.

WILLIAM LAW WATSON, New York:

Treatment of Tumors in the Region of the Eye: Exhibit of transparencies illustrating tumors located about the eye; photographs of the gross lesions and of the eye before and after treatment; indications for the different forms of treatment, whether radiologic or surgical, demonstrated and complications of each illustrated; ophthalmologic complications resulting from radiation therapy for cancer about the eyes illustrated and methods for avoiding such complications demonstrated.

ALAN C. WOODS, JOHN M. McLEAN and DELBERT PARKER, Johns Hopkins Hospital, Baltimore:

Art in Ophthalmology: Exhibit of the art collection of the Wilmer Institute and comprising various paintings and drawings made over the last twelve years illustrating various phases of ocular pathology, especially fundus diseases; collection of colored stereoscopic slides of ocular pathology, and various photographic materials relating to art in ophthalmology, including motion pictures.

JAMES W. WHITE and HAROLD W. BROWN, New York:

Various Types of Strabismus: Exhibit of pictures demonstrating the various types of strabismus—hereditary, congenital and acquired paralysis; accommodative forms of strabismus; results of treatment, operative or otherwise.

BERNARD SAMUELS, CONRAD BERENS, BRITAIN F. PAYNE, EDGAR B. BURCHELL and DONALD W. BOGART, New York:

Ocular Pathology: Exhibit of gross and microscopic specimens from the pathologic collection of the New York Eye and Ear Infirmary, with special reference to intra-ocular neoplasms, primary and secondary glaucoma, ectasias and inflammatory conditions.

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, INC., New York:

The Doctor Saves Sight: Exhibit of a large wall map showing the sight conservation committees of local medical societies; presenting graphically ways in which the National Society for the Prevention of Blindness offers its services to the medical profession; presenting selected slides available for loan to the medical profession and other visual education material.

ALSON E. BRALEY, Detroit:

Intracellular Bodies of the Conjunctival Epithelial Cells: Exhibit of photomicrographs showing intracellular bodies of the conjunctival epithelial cells; bodies found in epithelial cells under physiologic and pathologic conditions illustrated and discussed; direct smears of conjunctival cells and tissue culture epithelial cells shown; differential diagnosis between the Halberstoder-Prowazek inclusion bodies and all other forms of intracellular bodies discussed.

RAYMOND L. PFEIFFER, New York:

Roentgenography of the Optic Canals: Exhibit of roentgenograms of the optic canals showing normal variations and pathologic changes, presented with descriptive legends and notes on case histories with diagnoses, and revealing the canals in true contour, symmetrically and stereoscopically.

L. S. STONE and FREDERICK A. WIES, Yale University School of Medicine, New Haven, Conn.:

Return of Vision in the Vertebrate Eye Following Repeated Transplantations: Exhibit of photographs and explanatory placards giving the results of various studies on the vertebrate

eye; motion picture showing the operation involved in transplanting the entire eye of the salamander from one individual to another; various stages after operation in the appearance of the eye up to the time when it becomes again a normal functioning organ; experiments demonstrating return of visual as well as other functions in the eye after repeated transplantations.

JOHN N. EVANS, CHARLES ROSENTHAL, CHARLES HOPKINS, HENRY ABBOTT, GEORGE GRAHAM and MICHAEL BERNFELD, Brooklyn:

Recent Advances in Central Visual Field Studies: Exhibit showing result of research work over a period covering the last ten years, presented in the form of records, charts and photographs, supplemented by demonstration of instruments, technic of examination and motion pictures; historical review, anatomy, physiology, clinical studies and theoretical considerations, representing past contributions and active studies.

Section on Radiology

The representative to the Scientific Exhibit from the Section on Radiology is S. W. Donaldson, Ann Arbor, Mich.

S. J. HAWLEY, Geisinger Hospital, Danville, Pa.:

Rotation Therapy: Exhibit showing that rotation therapy is a method of irradiation of deep seated lesions by means of which, under certain limiting conditions, an advantageous ratio of deep to surface dosage may be obtained; a life size model shown in operation demonstrating the method of application; charts and graphs showing the distribution of radiation within the body and the application of the method to the patient.

I. SETH HIRSCH, College of Medicine, New York University and Beth Israel Hospital, New York:

Application of Fluorography to Group Examinations: Exhibit showing that fluorography is the photography of the fluoroscopic image and that by this method a complete roentgen examination of the chest may be made on small films, reducing the cost of the roentgen examination to 2 per cent of the cost of the usual large films, making it possible to apply roentgen examination of the chest to large groups of the population; a series of direct films and indirect fluorographs of 100 persons demonstrating the value of the fluorographic method in detecting pulmonary and cardiac lesions.

CORNELIUS G. DYKE, Neurological Institute of New York, New York:

Roentgen Study of the Skull and Intracranial Contents with Particular Reference to Tumors: Exhibit including samples of various type of intracranial tumors as shown on the plain roentgenograms of the skull and showing the changes in the skull produced by infections, subdural hematoma and cerebral hypoplasia. A section will be devoted to encephalography and ventriculography and the conditions which may be elucidated by these procedures.

BERNARD P. WIDMANN and HERMAN OSTRUM, Philadelphia:

Roentgenology of the Heart and Aorta: Exhibit showing correlation of autopsy, clinical and roentgen examinations of congenital, organic and functional types of hearts and aortas; according to the stage of development, a manifold variety of contours of the heart and aorta are demonstrated; rheumatic, syphilitic, arteriosclerotic, hypertensive as well as cardiac and aortic aneurysms.

WILLIAM H. MEYER, New York Post-Graduate Medical School and Hospital of Columbia University, New York:

Depth Dose Calculation: Exhibit of charts illustrating a method of depth dose estimation wherein absorption in relatively small unit masses is used as the index of effective radiation; and an instrument for determining depth dosage under the many different operating conditions.

LEE A. HAWLEY and THEODORE SNOOK, Syracuse University College of Medicine, Syracuse, N. Y.:

Cervical Spine Studies: Exhibit of roentgen ray studies of the cervical spine showing normal relationship of the segments in flexion and in extension with changes indicating injury; accessory first dorsal transverse process; normal and abnormal cervical foramina; 45 degree roentgen ray studies of the intervertebral foramina and microscopic sections cut from the corresponding cadaver specimens.

WILLIAM E. HOWES and SAMUEL G. SCHENK, Brooklyn:

Primary Bone Tumors: Exhibit of charts giving classification of bone tumors; transparencies showing the pathology plus roentgenograms of each group; cases shown before and after roentgen therapy; case histories; charts giving age, sex and survival period of the group under consideration.

JACOB FIERSTEIN, New York:

Obstruction of the Gastrointestinal Tract; Roentgenologic Demonstration: Exhibit of roentgenograms and charts showing the results of obstruction at various points in the gastrointestinal tract, some of which are diagnosable clinically and all of them demonstrable by roentgen examination; in abdominal pathology roentgen examination has been enlightening in obscure cases; level of obstruction is often precisely localized and in other instances the approximate level may be determined; growing tendency to make simple roentgenograms of the abdomen preoperatively in all but the most obvious or urgent cases.

GIACCHINO FAILLA, EDITH H. QUIMBY, L. D. MARINELLI and T. R. FOLSOM, Memorial Hospital, New York:

New Radiation Equipment: Exhibit showing new equipment developed especially for the roentgen and radium departments of Memorial Hospital, including 1,000 and 250 kilovolt x-ray machines, a recording-integrating dosimeter, a new radon plant and various devices for protection against penetrating roentgen rays and gamma rays; diagrams and photographs of the new equipment, information regarding protection in the voltage range from 200 to 1,000 kilovolts, absorption and depth dose data for the new x-ray machines; portable apparatus.

RAPHAEL POMERANZ and RICHARD H. DIEFFENBACH, Newark, N. J.:

Primary Cancer of the Lung—A Radiologic Study: Exhibit of transparencies illustrating a series of cases of primary cancer of the lung which were followed up clinically, radiographically, microscopically and in some cases surgically; results obtainable by surgery and radiotherapy; statistical study of cancer of the lung in the United States; conclusions.

WILLIAM SNOW, New York:

Roentgenology in Advanced Pregnancy—Original Studies: Exhibit presenting roentgenographic method of studying the size and form of the pelvic inlet, midpelvis and outlet illustrated and correlated with the fetus; roentgenographic study of soft tissues with location of placenta, hydramnios in vivo, the picture of hydramnios reproduced experimentally; placenta praevia, amniotic sac, abdominal pregnancy, tumors, forewaters and lower uterine segment.

D. E. EHRLICH, New York City Cancer Institute, New York:

Pendent Mastography: Exhibit describing the method of making roentgenograms of patient in the standing position; illustrative cases showing the value of the pendent position; numerous conditions shown, such as benign tumors, hematoma, malignant tumors and inflammatory reactions.

Section on Pathology and Physiology

In addition to a large group of exhibits on pathology and physiology, the section is cooperating in the Special Exhibit on Fresh Pathology. The representative to the Scientific Exhibit from the section is Frank W. Konzelmann, Philadelphia.

E. PFEIFFER and ATHALIA BECHTEL, Hahnemann Medical College and Hospital, Philadelphia:

Crystallographic Studies of Abnormal Growth: Exhibit of charts describing the technic and tabulating the results obtained by applying the Pfeiffer crystallization method in the diagnosis of malignant tumor formation; study of the influence of the addition of hemolyzed blood on the various crystallization patterns of copper chloride, using the blood both of human beings and of mice; display of the actual crystallizations.

EUGENE R. WHITMORE, Washington, D. C.:

Cancer of the Breast; Radiant Energy and Lesions of the Skin: Exhibit of photographs and photomicrographs, with descriptive legends, from whole organ sections of the breast of chronic cystic mastitis, fibro-epithelial tumors and carcinoma of the breast; photographs and photomicrographs, with descriptive legends, showing effect of sunlight, quartz mercury arc radiations, and light sensitization in lesions of the skin.

NORMAN W. ELTON, Millard Fillmore Hospital, Buffalo.

The Defective Scar of High Cesarean Section: Exhibit analyzing the mechanism of uterine rupture in subsequent pregnancy from a histologic study of sixteen defective scars with and without uteroperitoneal fistulas; rupture is usually the tearing of a very thin scar, bridging a potential fistula, the side walls of which are lined by decidua; the play of stresses about a neutral point in the freshly sutured incision during involution tends to produce retraction of the outer layers, compression of the inner layers, and eversion of the wound; the method of suturing is open to discussion, since strangulation often leaves demonstrable damage.

EDWARD SINGER, ROBERT M. ROGERS, Brooklyn Hospital and Long Island College of Medicine, Brooklyn, N. Y.

Fluorescence Microscopy: Exhibit showing (1) vital microscopy in fluorescent light with high power magnifications of cells, tissues and organs of living animals; morphologic and color changes during physiologic and pathologic processes; morphologic effect of drugs in cells and organs of living animals; (2) fluorescence microscopy of histologic sections shown in auto fluorescence and induced fluorescence; (3) fluorescence analysis; the determination of pH , concentration, dielectric constant and the recognition of various substances by their fluorescence in tissues will be demonstrated; (4) transparencies of photomicrographs and drawings of fluorescent tissues; (5) charts explaining the theory and technics.

JACOB WERNE, HANS FREIVOGEL and CHARLES BREEDIS, Office of the Chief Medical Examiner, City of New York, Flushing Hospital and St. John's Long Island City Hospital:

Color Photography at the Autopsy Table: Exhibit of lantern slides of routine hospital and medicolegal pathologic material; demonstration of the use of polaroid lenses and screens which completely eliminate disturbing high-lights and accurately portray each successive finding at dissection. The accuracy with which the lesions are depicted, in natural color, makes this technic a valuable aid at conferences and in teaching.

JOHN EIMAN and CHARLES G. GROSSCUP, Abington Memorial Hospital, Abington, Pa.:

Control of Water and Solute Balance: Exhibit illustrating by means of diagrams and charts the fundamental factors governing the amount of water and its distribution in the body under normal and pathologic conditions; a graphic method for bedside evaluation and correction of water and solute balance.

WOLFGANG GRETHMANN and H. E. KLEINSCHMIDT, National Tuberculosis Association, New York:

Morphologic Biology of Tuberculosis: Exhibit of transparencies illustrating the pathologic progression of tuberculosis beginning with the primary tubercle, including specimen, roentgenogram before death and schematic diagram.

AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS, Muncie, Ind.:

Function of the Pathologist in the Community: Exhibit showing the pathologist as the hub of the scientific work of the community and hospital with spokes indicating different functions, such as bacteriology, chemistry, serology, toxicology, crime detection, autopsy, hematology, surgical pathology, research, and other community activities of the pathologist.

ALEXANDER S. WIENER, New York:

Medicolegal Applications of Individuality Tests of the Blood in Disputed Parentage and for Criminal Identification: Exhibit of charts illustrating technic of grouping dried and fresh blood stains; cases from actual forensic practice; charts outlining the heredity of the blood groups and MN types, with cases illustrating application in disputed parentage; visitors so desiring will be tested; facilities will be available for carrying out tests for the agglutinogens A, B, M and N and the subgroup of groups A and AB on fresh blood.

NATHAN ROSENTHAL, PETER VOGEL and MARIO VOLTERRA, New York:

Hematologic Diagnosis: Exhibit of photomicrographs of blood smears in various blood dyscrasias; smears of sternal bone marrow in diseases of the blood, Gaucher's disease, Niemann-Pick's disease, multiple myeloma and metastatic carcinoma; lymph node and splenic puncture in diseases of the lymph nodes and spleen; microscopic demonstrations.

SAMUEL WEISS and EUGENE FOLDES, New York:

Interrrelationship Between the Digestive System and the Morphologic and Chemical Composition of the Blood: Exhibit showing the manifold changes of the blood found in association with the functional and organic state of the gastrointestinal tract, the liver and pancreas. Many of these changes of the blood are conditioned by the state of the digestive system. On the other hand, the digestive system is influenced by the composition of the blood, and some of the hematologic findings shown in the exhibit are, in this sense, of primary significance.

HOLLIS K. RUSSELL, White Plains, N. Y.:

Histopathologic Studies in Blood Dyscrasias: Exhibit of colored photomicrographs of the peripheral blood, bone marrow and lesions characteristic of these diseases in the internal organs.

ALFRED PLAUT, Beth Israel Hospital, New York:

Pituitary Gland in Man and Ape: Exhibit of photomicrographs, with legends, descriptions and explanations, showing the pituitary gland in man and ape; septic lesions in the pituitary gland; pinealocytoma with metastases.

SAMUEL A. GOLDBERG and PHYLLIS STANLEY, Presbyterian Hospital, Newark, N. J.:

Endocrine Lesions and Experimental Cretinism: Exhibit of charts, museum specimens and photomicrographs illustrating lesions in some of the endocrine organs and experimental athyria; solid and cystic tumors of the ovary, hydatidiform moles and chorio-epithelioma, various types of testicularis and tuberculoma testis, primary and secondary tumors and tuberculosis of the adrenal glands, parathyroid adenoma associated with hypercalcemia, osteitis fibrosa cystica and nephrolithiasis, with recalcification after parathyroidectomy, and various types of carcinoma of the thyroid and a case of true cretinism; pathologic changes resulting from experimental cretinism, in sheep and goats, include persistence of the epiphyseal cartilages, calcification of the aorta, myxedema and hypertrophy of the adrenals.

ALFRED ANGRIST, Jamaica, N. Y., and RICHARD GRIMES, Forest Hills, N. Y.:

Demonstration of Forms of Intracranial Hemorrhage: Exhibit of natural color transparency photographs of the varying types of traumatic and medical hemorrhages found intracranially in the routine autopsy material, with clinical correlation; material from Office of the Chief Medical Examiner and the routine cases of the Queens General Hospital.

HERBERT T. KELLY and EDMUND L. HOUSEL, Philadelphia:

Deficiency Disease: Exhibit of charts, case reports, photographs and motion pictures summarizing some of the newer knowledge of nutrition; importance of deficiency disease, either alone or as a conditioning factor in other diseases stressed; vitamins, minerals, anti-pernicious anemia factor and biologic protein included in the minor quantities in the diet necessary for the maintenance of good health; details of history taking, physical examination, laboratory examination and therapy presented; factors of supply, digestion, absorption, storage and utilization considered.

LEWIS GREGORY COLE and WILLIAM GREGORY COLE, John B. Picree Foundation, New York, and St. Agnes Hospital, White Plains, N. Y.:

Unorthodox Microscopic Criteria: Exhibit of light and dark field photomicrographs of pneumoconiosis, correlating the pathologic observations in four types of pneumoconiosis with the roentgenologic examinations; previously unrecognized microscopic criteria observed in neoplastic lesions compared with their antitheses as observed in inflammatory lesions.

R. H. RIGDON, Pathologic Institute, University of Tennessee, Memphis:

Observations on Capillary Permeability and Inflammation: Exhibit of photographs made in an experimental study on inflammation and capillary permeability; inflammation produced by the local application of xylene and trypan blue, india ink, a virus and staphylococci all observed to localize in these areas of inflammation; time of localization influenced by the interval between the application of the irritant and the intravenous injection of the substances mentioned.

Section on Nervous and Mental Diseases

The representative to the Scientific Exhibit from the Section on Nervous and Mental Diseases is F. P. Moersch, Rochester, Minn. Motion pictures will be shown in an adjoining area in addition to the exhibits.

R. FINLEY GAYLE JR., Richmond, Va., and JAMES B. PETTIS, Staunton, Va.:

Results of the Use of the Bulgarian Treatment in Parkinsonism: Exhibit of a motion picture showing three bedridden patients with Parkinson's disease before the use of belladonna root extract and the same patients after its use; still pictures showing patients in oculogyric crises and others showing the attitude and gait of the disease before and after treatment; charts giving details of the history of at least fifty cases of parkinsonism describing the type of the disease, the parts involved, the duration of the disease, the previous treatment and the response to belladonna root extract; a chart showing the objective improvement in amplitude of the tremor and improvement in handwriting.

JAMES GREENWOOD JR., Houston, Texas:

Spinal Epidural Varicosities and Thrombophlebitis: Exhibit of sketches of normal anatomy of extradural plexus and their drainage; placards describing syndrome of epidural varicosities; drawings illustrating why posture has such an important role in aggravating or relieving symptoms; case reports with drawings illustrating the condition found at operation; roentgenograms of spine showing block by iodized poppy-seed oil, pedicle erosion, etc.; summary of the results of operation; speculation as to etiology.

FREDERIC A. GIBBS, W. G. LENNON and A. M. GRASS, Boston City Hospital, Boston:

Recent Advances in Electro-Encephalography: Exhibit of charts, models and motion pictures giving the results obtained with new instruments in brain tumor localization and in the study of central nervous disorders, notably epilepsy and schizophrenia, in both their clinical and their subclinical form; new types of multichannel electro-encephalograph and frequency analyzers for clinical and research studies.

SIDNEY W. GROSS, New York:

Cerebral Arteriography by Means of a Rapidly Excreted Organic Iodide: Exhibit demonstrating the technic, indications and results of cerebral arteriography by means of a rapidly excreted organic iodide; films showing the results obtained by this method, including the normal cerebral circulation in man and various lesions, such as aneurysms, neoplasms and vascular anomalies of the brain.

E. A. SPIEGEL, MONA SPIEGEL-ADOLPH and H. T. WYCIŚ, Temple University School of Medicine, Philadelphia:

Physiopathology of Convulsive Disorders: Exhibit of portable apparatus for measurement of polarizability and permeability of brain tissue in vivo; charts illustrating physicochemical mechanisms in convulsive reactivity; quantitative measurement of convulsive reactivity (effect of various bromides, hypochloremia and hyperchloremia, hypercholesteremia); permeability changes induced by metrazol and insulin convulsions; changes of the ratio of nonelectrolytes to electrolytes in the spinal fluid in epileptic and in schizophrenic patients after artificially induced convulsions.

JOHN KERSHMAN, HERBERT JASPER and ARTHUR ELYDGE, Montreal:

Clinical Electro-Encephalography with Special Reference to Studies of Head Injury: Exhibit showing the clinical use of the electro-encephalogram, demonstrating standard placements of electrodes; examples of patients with head injuries, correlating the clinical and neurologic examinations, roentgenograms, spinal fluid examination and electro-encephalograms; various types of electro-encephalograms and injuries shown.

HENRY R. VIETS and ROBERT S. SCHWARZ, Boston:

Recent Advances in Myasthenia Gravis: Exhibit showing the diagnosis, physiology, pathology and treatment of myasthenia gravis; (a) diagnosis: synchronous electromyographic and quantitative ergographic studies; barium studies on patients with dysphagia; sound studies in dysarthria; (b) physiology: effect of

prosthigmine on heart muscle as shown by kymographic roentgen ray shadow; effect of prosthigmine on the handwriting; (c) pathology: postmortem reports on two recent deaths; (d) treatment: additional studies in drug therapy.

DAVID J. COHN and IRVING KAPLAN, Michael Reese Hospital, Chicago:

Enzymes in the Central Nervous System: Exhibit presenting a study of the distribution of enzymes in normal brain and spinal cord tissue and in the cerebrospinal fluid, and of certain abnormalities found in disease; a correlation of recent advances in this field and their clinical significance.

HAROLD C. VORIS, J. J. KEARNS and A. H. P. E. VERBRUGHEN, Chicago:

Head Injuries: Neurosurgical and Neuropathologic Exhibit: Exhibit of necropsy specimens of brains of patients dying from various types of head injury and illustrating various types of brain injury; drawings illustrating various types of external trauma and injury to the cranial vault; charts and diagrams illustrating statistics of the neurosurgical service at the Cook County Hospital, clinical classification of cases of head injury, and clinical management of various types of cases of head injury, including those in which surgical treatment is indicated; technic of surgical treatment of operative cases illustrated in motion pictures; statistical review of cases.

MOTION PICTURES

The following motion pictures will be shown on a regular schedule in an area adjoining the exhibits of the Section on Nervous and Mental Diseases:

A. E. BENNETT, Omaha:

The Use of Curare in Spastic States and Convulsive Shock Therapy.

S. PHILIP GOODHART and BENJAMIN HARRIS BALSER, Columbia University and Montefiore Hospital, New York:

NEUROLOGIC CINEMATOGRAPHIC ATLAS:

Progressive Atrophies, Dystrophies and Allied Conditions. Convulsive and Allied States.

Somatic Endocrine Types.

Neuro-Ophthalmologic Conditions.

Dystonia Musculorum Deformans.

Postencephalitic Syndromes.

B. T. HORTON and G. M. ROTH, Mayo Clinic, Rochester, Minn.:

Collapse After Swimming.

J. RUDOLPH JAEGER, University of Colorado School of Medicine, Denver:

Frontal Lobe Tumor.

Diagnosis of Brain Lesions by Injection of Air.

Herniated Intervertebral Disk (with Sciatic Neuralgia).

Pearly Tumor Cerebellopontile Angle.

Compound Depressed Fracture of the Skull.

Lumbar Sympathectomy for Traumatic Sciatic Neuritis.

Craniopharyngioma (Rathke Pouch Pituitary Tumor).

Intracranial Meningioma.

Tumor of the Spinal Cord.

Removal of Intracranial Subdural Hematoma.

JOHN MCDOWELL MCKINNEY and MAURICE FROCHT, Neurological Institute, New York:

Adie's Syndrome. A Nonsyphilitic Disease Simulating Tabes Darsalis.

TRACY J. PUTNAM and PAUL F. A. HOEFER, Neurological Institute, New York:

Paralysis Agitans and Athetosis—Physiology and Treatment.

C. H. SHELDEN and HENRY W. WOLTMAN, Mayo Clinic, Rochester, Minn.:

Ménière's Syndrome Treated With Histamine Given Intravenously.

W. H. STEWART, H. C. MAIER and C. W. BREIMER, Lenox Hill Hospital, New York:

Cine-roentgenography of the Chest and Upper Digestive Tract.

HENRY W. WOLTMAN, Department of Neurology, Neurosurgery and Biophysics, Mayo Clinic, Rochester, Minn.:

The Correlation of Clinical, Electro-Encephalographic and Pncumo-Encephalographic Localization.

EDUCATIONAL CLASSIFICATION

Government and National Organizations

The educational exhibits include those exhibits from national and state organizations and government institutions which are put on in the name of the institution rather than of individuals and which are intended to show progress in the particular activities with which those institutions deal.

These exhibits are not open to medal awards, but a certificate of merit is presented to the best exhibit in the classification.

AMERICAN SOCIETY OF ANESTHETISTS, New York:

Anesthesiology—Historical Development: Exhibit showing interesting pieces of apparatus and books of historical significance. (This exhibit is presented in connection with the Section on Miscellaneous Topics, Session on Anesthesia. For a more complete description see that section.)

MEDICAL SOCIETY OF THE STATE OF NEW YORK, Brooklyn:

Committee on Maternal Welfare: Exhibit of charts showing character and progress of maternal welfare and work in the county medical societies of the state; printed material for distribution.

CHILDREN'S BUREAU, Washington, D. C.:

Nutrition in Relation to Growth and Development of Children: An exhibit dealing with the diagnosis of scurvy and rickets, vitamin C deficiency and physical status of school children. (This exhibit is presented as part of the exhibit symposium on nutrition of children by the Section on Pediatrics. For a more complete description see that section.)

AMERICAN PHARMACEUTICAL ASSOCIATION, Washington, D. C.:

National Formulary Preparations: Exhibit of National Formulary preparations of interest to prescribing physicians; examples of preparations of therapeutic importance representing convenient and satisfactory dosage forms and of vehicles designed to aid the physician in prescribing attractive and palatable prescriptions.

U. S. PHARMACOPEIA CONVENTION, Philadelphia:

United States Pharmacopoeia, Eleventh Revision: Exhibit of pharmacopoeial preparations and chemicals and a demonstration of the use of these in prescription practice.

ADVISORY BOARD FOR MEDICAL SPECIALTIES, Pittsburgh:

Exhibit of charts, certificates and literature describing the work of the Advisory Board for Medical Specialties and of the examining Boards for Certification in medical specialties, including the American Boards of Ophthalmology, Otolaryngology, Obstetrics and Gynecology, Dermatology and Syphilology, Pediatrics, Psychiatry and Neurology, Radiology, Orthopedic Surgery, Urology, Pathology, Internal Medicine, Surgery (Anesthesiology and Plastic Surgery as affiliates of the American Board of Surgery) and Neurological Surgery. The new Directory of Medical Specialists certified by the American Boards will also be shown.

NATIONAL BOARD OF MEDICAL EXAMINERS, Philadelphia:

Exhibit of charts describing the work and progress of the National Board of Medical Examiners and presenting the results of its examinations.

AMERICAN COLLEGE OF SURGEONS, Chicago:

Bone Sarcoma: Exhibit of charts, diagrams and descriptive material pertaining to the diagnosis and treatment of malignant bone tumors.

AMERICAN SOCIETY FOR THE HARD OF HEARING, Washington, D. C.:

Exhibit of posters, charts and pictures emphasizing the four point program: prevention, conservation, alleviation and rehabilitation; literature on the hard of hearing child, the hard of hearing adult, hearing tests, lip reading and hearing aids.

TENNESSEE STATE MEDICAL ASSOCIATION, Nashville:

Postgraduate Medical Education (Extension): Exhibit of a map of Tennessee showing (1) teaching districts, (2) teaching (pediatrics) centers and (3) distribution of physicians who have entered into the postgraduate courses according to their residence; letters of appreciation; map showing information for two years' instruction in obstetrics.

OKLAHOMA STATE MEDICAL ASSOCIATION, POSTGRADUATE COMMITTEE ON MEDICAL TEACHING, Oklahoma City:

Postgraduate Teaching in Obstetrics and Pediatrics: Exhibit portraying the administration and operation of the two year program on postgraduate teaching in obstetrics in Oklahoma; map showing the eight teaching districts and each teaching center therein, panels displaying aids used in teaching and pertinent information regarding the course and data pertaining to the present two year program in pediatrics; a pamphlet giving the history and methods of operation of postgraduate medical teaching in Oklahoma since 1925.

American Medical Association

The exhibits from the headquarters group of the American Medical Association will be found in various parts of the hall. These exhibits are not open to awards.

ARCHIVES OF SURGERY:

Exhibit presenting the outstanding points of merit of the ARCHIVES OF SURGERY.

COUNCIL ON PHYSICAL THERAPY:

Audiometers and Hearing Aids: Exhibit demonstrating the component parts and the function of audiometers and hearing aids.

COUNCIL ON INDUSTRIAL HEALTH:

Silicosis: Exhibit of charts, transparencies and specimens showing the causes, prevalence, pathology and prevention of silicosis.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS:

Exhibit of charts, maps and other material showing the results of the work of the Council in medical education, licensure, specialty certification and hospital service, including postgraduate opportunities, extension training, fellowships, residencies and internships; publications, statistical data and lists of approved medical schools, hospitals and schools for technicians.

COUNCIL ON PHARMACY AND CHEMISTRY:

Exhibit of charts, descriptions and publications dealing with the work of the Council on Pharmacy and Chemistry in evaluating medicinal articles and disseminating the resultant information for the benefit of the profession.

AWARDS

There will be two groups of awards consisting each of (a) gold medal, (b) silver medal, (c) bronze medal and (d) certificates of merit.

[NOTE.—The special subsidized exhibits (fractures, lame backs and fresh pathology) and the exhibits of the headquarters of the American Medical Association are not open to awards.]

GROUP I

Awards in group I are made for exhibits of individual investigations, which are judged on basis of originality and excellence of presentation.

GROUP II

Awards in group II are made for exhibits that do not exemplify purely experimental studies, which are judged on basis of the excellence of correlating facts and excellence of presentation.

Medals are awarded only to individuals. A special certificate of merit will be awarded to the best educational exhibit in the Educational Classification (this includes exhibits by national societies).

The Committee on Awards will be composed of five persons. It will make the decisions on Wednesday.

The names of the members of the Committee on Awards will not be available until after the decisions have been published.



A Showing
of more than
250 firms •

**IMPROVED APPARATUS
AND INSTRUMENTS**

LATEST BOOKS

SPECIAL FOODS

NEW REMEDIES

THREE spacious floors of well-ordered booths; hundreds of attractive displays of new products, new ideas, new services; courteous, capable experts in practically every line of the medical manufacturing industry—this is what the Technical Exposition in Grand Central Palace holds in store for the visiting physician.

Here in a brief space of time, the physician can make contact with the great strides in pharmaceutical manufacturing; here he can browse through practically the complete line of medical books of leading publishers; here he can see actual specimens of thousands of instruments and pieces of apparatus—take them in his own hands—see them manipulated as in actual use; and here he will find scientific representatives of important food firms ready to tell him about the applications of hundreds of food products to nutritional problems.

The arrangement of the technical exhibits on the three floors with the scientific exhibits immediately above provides a compactness which will be most convenient. Elevators and stairs will furnish ready access to all departments.

Registration Headquarters will be located on the second floor, while on the third floor will be a comfortable lounge with writing facilities for all physicians and guests. Here, too, will be registration tables for fraternal and alumni organizations.

Visit this great center of interest whenever possible, before meetings, between meetings, and afterwards. It will be a convenient place to meet friends and make contacts. You will find it an Exposition rather than a sales-room. Therefore feel at perfect liberty to call at any and all of the exhibits, inspect the material on display, and ask questions without fear of being pressed to make a purchase. The Exposition will be open each day from 8:30 A.M. to 6:00 P.M. It will close Friday at noon.

In the following pages are brief items telling what different manufacturers will exhibit.

WILL C. BRAUN
Director of Exhibits

** Apparatus and Instruments*

ACOUSTICON—DICTOGRAPH SALES CORP.

Acousticon invites all delegates and physicians to visit their exhibit at Booth 289. See displayed a complete line of new Acousticons, including the Model A-45, Vacuum Tube Acousticon. Of particular interest to physicians will be the Comparator, a new device being introduced by Acousticon which gives a graphic picture of the improvement obtained from the aid.

A. S. ALOE COMPANY

A miniature diorama of a modern medical office, with exact scale working models of Aloe Steelcase furniture, will attract unusual interest to the Aloe display in Booths 287, 287A and 288. In addition, a complete showing of the newest in instruments, equipment and clinical laboratory apparatus including the new Washington University Portable O-B Table.



AMERICAN MEDICAL SPECIALTIES CO.

Their representatives will demonstrate for you the Wound Bridge, the Mero Blood Sedimentation Outfit for rapid determination of blood sedimentation rate, the E-Z Cuff, a quickly applied blood pressure cuff for any instrument, the Blackwood Replaceable Headmirror and a new model Electric Centrifuge. The complete line of Amseo Products will be displayed in Booth 115.

(Continued on next page)



AMERICAN HOSPITAL SUPPLY CORP.
You will be interested in the latest advancements in blood transfusion and will be demonstrated in Booth 59, with the Baxter Transfuse Vac and its companion, the Baxter Plasma-Vac. Other selected specialties will be included.

AMERICAN OPTICAL COMPANY
Prescription accuracy, ease of operation and patients' comfort will be the three features most attracting your interest about the new AO Additive Phoropter displayed in Booths 263, 264, 265 and 266. You will also see exhibited much of the company's other diagnostic and refractive equipment. Representatives will be on hand to answer your questions.

AMERICAN SAFETY RAZOR CORPORATION
For complete information on A.S.R. Surgeon's Blades visit Booth 208. Meet their representatives, who, from personal experience and long observation, can answer all your questions about these Surgeon's Blades. They will gladly explain the various uses of the blades—9 types in all to suit every need. Drop in at Booth 208, chat with their representatives. Sample their products.

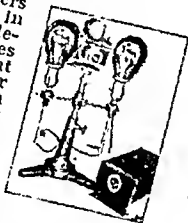
AMERICAN STERILIZER COMPANY
A display of typical modern office types of sterilizers will feature the exhibit in Booth 35. Attendants will be on hand to welcome you and discuss the equipment with you.

AUSTENAL LABORATORIES, INC.
Booth 25

C. R. BARO, INC.
Booth 126

BARO-PARKER COMPANY, INC.
Baro-Parker will exhibit the following products at Booth 14: Rib-Back surgical blades, Renewable Edge scissors, Hematological Case for obtaining blood samples at the bedside and Ortholator for obtaining accurate dental radiographs. You are invited to visit the display.

BARNETT LABORATORIES
Clinical photographers and others interested in photography for supplementing case histories are invited to call at Booth 215. Bring your own camera, if it's a Leica, Contax or similar model and you will be shown how to adapt it for clinical photography. Demonstration Eye Kits also on exhibit.



BAUSCH & LOMB OPTICAL CO.
Booths 275 and 276

BECTON, DICKINSON & CO.
In Booths 81 and 82, Becton, Dickinson will present a complete line of syringes, needles, thermometers, Acc-Bandages, Aseptic syringes and diagnostic items. A special feature will be the demonstration of the new Elastic Adhesive Bandage just added to the line. In addition, a daily demonstration of thermometer blowing and syringe making, a regular feature of their exhibit. Trained attendants available to discuss equipment and uses.

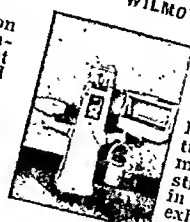
ENOCHS MANUFACTURING COMPANY
Booth 294A

FOREGGER COMPANY, INC.
On display for Foregger, in Booth 93, will be resuscitation and anesthesia apparatus, including the new O.F. type anesthetic apparatus. The latter will include a new design specially suited to those requiring small, compact and inexpensive apparatus. Improved oxygen equipment, including the Bullowa Inhaler for nasal administration and a newly designed oxygen humidifying outfit will also be shown.

GASTRO-PHOTO LABORATORIES
Booth 112 will be of interest to all physicians. Here will be shown the improved Gastro-Phot, representing ten years of

THE TECHNICAL EXPOSITION

CAMERON SURGICAL SPECIALTY CO.
See the new Cameron-Schindler Flexible Gastroscope, the Color-Flash Clinical Camera, the Projector and the latest Cameron-Lempert Headlight demonstrated. Also on display will be the new inexpensive Spark-Model Radio Knife, Combination Spark-Gap & Tube Electro-Surgical Unit, and other electro surgical units for cutting, coagulating, desiccation and fulguration in all sizes. Booth 89.



WILNOT CASTLE COMPANY
You will want to inspect the new modernistic cabinet designs of Castle sterilizers for they incorporate long life and newness the features of Castle Full-Automatic Cast-In-Bronze construction. Also on display in Booth 110 will be a full exhibit of Castle lights for surgical needs.

CAYO COMPANY
At the Cayo Booth 240, the surgeon has an opportunity, not only of seeing the latest improvements in the Cayo power instruments for bone surgery, but of observing these instruments demonstrated in actual bone work, such as sawing, chiseling, etc. At least one of the Cayo's is present at the booth much of the time.



CRESCENT SURGICAL SALES CO., INC.
Booth 21

CURLYTE PRODUCTS, INC.
Booth 285A

DE VILBISS COMPANY
Booth 211, reserved by the De Vilbiss Co., will have on display their complete line of medicinal atomizers. Specially featured in the exhibit will be illustrations graphically showing the coverage afforded by the atomizer in use on the nose and throat. These illustrations are based on X-ray research and copies for reference will be available free.

EISELE & CO.
Booth 139

ELECTRO SURGICAL INSTRUMENT CO.
You are cordially invited to visit Booth 88 where there will be shown a most complete line of electrically lighted surgical instruments. The improved Brausch-Bumpus Butic proctosigmoidoscopes. The Lynch Improved proctosigmoidoscopes and anoscope, in addition to the latest types of Jackson and Israel bronchoscopic instruments and accessories.

MARBEL BLOOD CALCULATOR CO.
The Amplifying Stethoscope will broadcast fetal heartbeats in convention hall from a patient sitting in Booth 312. Also a sound recorder near the loud speaker will record sounds of heart, lungs and blood pressure on a gramophone disc record of every doctor visiting the exhibit. Another feature of the Marbel booth will be the continuous running of the Marbel Blood Calculator.

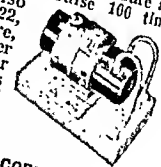


MECHANICAL LABORATORIES, INC.
Booth 219

MEDICALITE COMPANY, INC.
Don't miss the Medicalite exhibit, Booth 335. Here you will see a demonstration of how various colors appear under different style lighting and under modern daylighting. Every visitor should see the quality of light needed in examining rooms, laboratories and offices. And the Auxiliary Units equipped with Medicalite Bulbs will be of interest to all.

E. B. MEYROWITZ SURGICAL INSTRUMENTS
A display of ophthalmological apparatus and eye, ear, nose and throat instruments will headline Meyrowitz' exhibit, Booth 133. The Griffith-Rogers Trial Frame, Evans

JORDAN AIR & SUCTION PUMP CO.
This exhibit will feature a pressure and suction pump that will raise 100 times its own weight. Also shown will be an inexpensive, portable, heated ether and suction unit. Your questions and problems will be gladly handled by company representatives.



HAROLD SURGICAL CORPORATION
Last year Harold incorporated as part of their store decorations a set of murals on the "History of the Progress of Medicine." So much interest was created that the company decided to have small colored replicas made and will exhibit them in Booth 294. If you are interested in the History of Medicine, do not miss this exhibit.

KEYSTONE VIEW COMPANY
A feature of Booth 254 will be a new collection of orthoptic training cards for home prescription known as The Eye Skill Unit. This new type of card, called Monokrom, embodies the accuracy of photography and the precision of offset printing. You will find it attractive, yet less expensive than regular photography. Also on display will be Keystone's line of orthoptic instruments and stereoscopic targets.

KITCHEN KATGH-ALL CORP.
Demonstrations will be given of the new line of vaporizers and humidifiers for home, office and hospital use. And while at Booth 320, and Sterilizer see the "Baby-All" Formula outfit for mother and baby at home, and the new "Baby-All" Natural Nurse.

McKESSON APPLIANCE COMPANY
Booth 285

MAICO COMPANY, INCORPORATED
Booth 307

EXHIBITORS

- | | | | |
|--------------------------------------|---------------------|--------------------------------------|---------------------|
| Abbott Laboratories..... | North Chicago, Ill. | Amer. Nurses' Association..... | New York City |
| Agfa Ansco..... | Binghamton, N. Y. | Amer. Optical Co..... | Southbridge, Mass. |
| Allerga Products Co., Inc..... | Cleveland | Amer. Physicians' Art Assn..... | New York City |
| Allison Company, W. D..... | Newton, Mass. | Amer. Seal-Kap Corp..... | Long Island City |
| Almay Pharmaceutical Corp..... | New York City | Amer. Sterilizer Co..... | Brooklyn |
| Amer. Can Company..... | St. Louis | Appleton-Century Co., Inc., D..... | New York City |
| Amer. Comm. on Maternal Welfare..... | Chicago | Armour Laboratories..... | Yonkers, N. Y. |
| Amer. Cystoscope Makers, Inc..... | New York City | Austenal Laboratories, Inc..... | Chicago |
| Amer. Hosp. Supply Corp..... | Chicago | Aznoe's National Phys. Exchange..... | Chicago |
| Amer. Institute of Baking..... | New York City | | |
| Amer. Med. Ass'n..... | Chicago | | |
| Amer. Med. Specialties Co. Inc..... | New York City | | |
| | | Bard, Inc., C. R..... | New York City |
| | | Bard-Parker Co., Inc..... | Danbury, Conn. |
| | | | |
| | | Barnett Laboratories..... | Chicago |
| | | Battle Creek Sanitarium..... | Battle Creek, Mich. |
| | | Bauer & Black..... | Chicago |
| | | Baum Co., Inc., W. A..... | New York City |
| | | Beck-Lee Corp..... | Rochester, N. Y. |
| | | Becton, Dickinson & Co..... | Chicago |
| | | Bedford Surgical Co., Inc..... | Rutherford, N. J. |
| | | Becker Co., J..... | Brooklyn |
| | | Beck-Nut Packing Co..... | New York City |
| | | Best Foods, Inc..... | Canajoharie, N. Y. |
| | | Bilhuber-Knoll Corp..... | New York City |
| | | Blakiston Company..... | Orange, N. J. |
| | | | Philadelphia |

Seotometer, new Shoban Thermophore, Castroviejo and Bereas instruments will be featured. Also the Neivert Tonsil Saare and Stille stainless steel surgical instruments.

V. MUELLER & CO.
The highlights of all the various fields of surgery will be covered in the Mueller exhibit, Booths 80 and 81. Developments in ophthalmic instruments, also those in ear, nose and throat work, will be shown. by Instruments strides made in general surgery.
Your visit will be welcomed!

MULTIFIT, INC.
Booth 205

OHIO CHEMICAL & MANUFACTURING CO.
Look in on Booth 258 and see the complete line of Heidbrink Kinetometer Gas Machines, resuscitation equipment, oxygen tents, Oropharyngeal Outfits and other types of therapy equipment adopted for hospital use. There will also be a full display of Ohio equipment and Ohio anesthetic gases.

PELTON & CRANE COMPANY
It will be a special pleasure for the company to introduce the new Pelton, Twin "E & O" Surgical Light at this year's convention. Stop in and see how this light eliminates old-fashioned and costly remote control, and sets a record for low cost in surgical lighting. Also worth seeing will be Pelton's line of cast bronze sterilizers. Booth 32.

GEO. P. PILLING & SON CO.
Besides featuring Pilling-made Chevalier Jackson bronchoscopic equipment, this exhibit will include the Miller-Abbott double lumen tubes for intestinal intubation, the Leahy empyema tube, Crutchenfield tongs for cervical traction, DeMartel anastomosis clamps and others. Of special interest will be the Pilling-made Schiotz Tonometer, Bruening Oculoscope and Vienna Face Mask. Booth 291.

PROMETHEUS ELECTRIC CORP.
Prometheus will present an interesting exhibit of sterilizers, operating lights and food conveyors. Stainless steel equipment is featured in many new uses. And you will note the improved automatic control devices for sterilizing apparatus. A complete range of operating lights including unique features for better surgical lighting will be demonstrated. Booth 10.

RITTER COMPANY
This first time exhibitor will introduce its fluorescent lighting unit, a new product which has never been shown before. In addition, the Ritter Company will have on display its Sterilizers, Stools, Compressors and an ear, nose and throat unit installed in numerous hospitals within the last few years. Your inspection of Booth 123 is invited.

SAFETY GAS MACHINE CO., INC.
The Improved Augustana Model will be displayed in Booth 256. This gas machine meets the requirements of the Council and is acceptable to them as published in a recent issue of the Journal. You will surely want to inspect it and the other new anesthesia equipment. Demonstrations by an experienced anesthetist.

SCANLAN-MORRIS COMPANY
Booths 18 and 19

J. SKLAR MANUFACTURING CO.
The Sklar exhibit in Booth 366 will feature new suction and pressure apparatus, including the Improved Tompkins Portable


Rotary Compressor, the DeLuxe Tompkins, the new Imperatori Apparatus for ear, nose and throat, Ralk's Ideal Unit and Moorhead Unit for office and clinic, and the new hospital model of the Bellevue Suction and Pressure Unit. In addition, a complete display of Sklar's American made stainless steel surgical instruments.

J. R. SIEBRANDT MANUFACTURING CO.
The Goodwin Bone Clamp with Drill Guide, which is now equipped with calibration to measure diameter of bone, will be displayed by Siebrandt in Booth 13. Not only does it control direction of drilling, but you can see how it shows the exact length required to drill through both cortices. Other new items to be featured also.



** Diagnostic Apparatus*

AMERICAN CYSTOSCOPE MAKERS, INC.
A cordial invitation is extended to you to visit the A. C. M. I. Booths 7 and 12 and inspect the first woven ureteral catheters manufactured in America. Learn why Nylon the new Du Pont product was selected. The A. C. M. I. X-Ray and Non-X-Ray Woven Catheters may be boiled repeatedly without harm. No known sterilizing agent affects them adversely. Examine them at Booths 7 and 12.



W. A. BAUM CO., INC.
Your inspection of the new Standby Model Baumanometer in Booth 52 will be welcomed. In addition, you will find this exhibit includes the showing of new features of the Kompak Model, the "300" Model and emphasizes a new renewal service to Baumanometer users.

BECK-LEE CORPORATION
The increasing use of the cardiogram as a diagnostic essential will focus attention on this exhibit of the latest electrocardiographs by Beck-Lee. Several vastly improved models will be shown. These instruments incorporate the long accepted standard of cardiography—the quartz string. Booth 57.

CAMBRIDGE INSTRUMENT COMPANY, INC.
Featured in Booth 72, as part of a complete display of Cardiac Diagnostic Instruments, Cambridge will show a new instrument for both office and bedside use—a portable "Simpli-Trol" electrocardiograph-stethograph that weighs only 34 pounds and produces simultaneous electrocardiogram and stethogram plus amplified auscultation. This and other models will be demonstrated.

GRAOWOHL LABORATORIES
Gradwohl's exhibit, in Booth 23, will show the laboratory procedures in making blood tests for typing donors . . . also in determining paternity. You will see demonstrated the necessity of using properly titrated sera and the various safeguards to be thrown around this important procedure. Physicians visiting the exhibit are invited to be typed by the expert in charge.

H. L. GRAHAM
Allergists and dermatologists will be specially interested in Graham's method of patch testing with plant oleoresins. Last year displayed scientifically by Bedford

SONOTONE CORPORATION
Latest developments in hearing aids, including crystal, vacuum tube, and carbon type audicles and techniques used in fitting varying degrees of hearing loss will be featured in Booths 222 and 223. Copies of "Hearing Aids"—a readable, technical handbook on hearing aids and their fitting will be available free.

SPENCER LENS COMPANY
Booths 263, 264, 265, 266

STORZ INSTRUMENT COMPANY
Booth 284

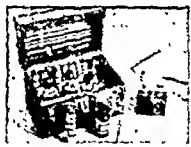
ZIMMER MANUFACTURING COMPANY
At Booth 20, Zimmer will display many new items: the Luck Bone Saw, Cast Knife, Cast Spreader, Wire Cutters, Adjustable Hip Reamers, Rib Splints, O'Connell Transfusion Splint, new type Three Flanged Hip Nail, and Batchelor Extension Apparatus. You will see a complete line of fracture equipment and demonstrations.

Shelmire and Graham, this year these oleoresins for testing will be exhibited commercially in Booth 311. Stop in and learn what an accurate, convenient method of testing this is.

HERZ-LASKER CORPORATION
At Booth 96, the Offer Direct Writing Electrocardiograph will be on exhibit. See the heart currents recorded in ink on a moving chart so that the cardiogram is immediately available without dark room development. Other new developments shown will be the Weiss Sinusoidal and Galvanic unit and Erlanger Eye Ionization Electrodes.

JONES METABOLISM EQUIPMENT CO.
You will have an excellent opportunity to see the Jones Motor Basal Metabolism Unit in actual use. Note this interesting feature—it contains no water and requires no calculation in the determination of the basal metabolic rate. Other exclusive features demonstrated, too! Stop in at Booth 61.

LAMOTTE CHEMICAL PRODUCTS CO.
LaMotte Blood Chemistry Outfits will be exhibited in Booth 104. Included in this year's display will be the new LaMotte Falling Drop Densimeter and LaMotte Outfits for determining older units will also be displayed.



NATIONAL ELECTRIC INSTR. CO., INC.
In Booth 69, "National" will exhibit many new developments in illuminated instruments, including the Shadowless Oculoscope, "Centre-of-Beam" Specialists' Headlight, Complete Body Cavity Set, complete Caution Equipment and Transillumina-tors, Non-Luminous and Illuminated Statoscope.



PFALTZ & BAUER, INC.
An exhibit centered around the Fluorophotometer for vitamin determinations, the Colorimeter, Reflectometer and other photoelectric control instruments will highlight

E X H I B I T O R S

Books of University Presses.....	Chicago	Church & Dwight Co., Inc.....	New York City	Crescent Surg. Sales Co., Inc.....	New York City	
Borden Company.....	New York City	Ciba Pharmaceutical Products, Inc. Summit, N. J.	Cikfold Surg. Dressing Co.....	Marshalltown, Iowa	Curville Products, Inc.....	New York City
Burdick Corporation.....	Milton, Wisc.	Citrus Concentrates, Inc.....	New York City	Cutter Laboratories.....	Berkeley, Calif.	
Cambridge Instrument Co., Inc.....	New York City	Clapp, Inc., Harold H.....	Jersey City, N. J.	Davis Company, F. A.....	Philadelphia	
Cameron Surg. Specialty Co.....	Chicago	Clay-Adams Company, Inc.....	New York City	Davis & Geck, Inc.....	Brooklyn	
Camp & Company, S. H.....	Jackson, Mich.	Collins, Inc., Warren E.....	Boston	Day's Ideal Baby Shoe Co., Mrs. Danvers, Mass.	Day's Ideal Baby Shoe Co., Mrs. Danvers, Mass.	
Carnation Company.....	Milwaukee	Colostomy Products, Inc.....	No. Bereren, N. J.	DePuy Manufacturing Co.....	Warraw, Ind.	
Cash, Incorporated, J. & J.....	So. Norwalk, Conn.	Columbian Steel Tank Co.....	Kansas City, Mo.	Devereux Schools, Inc.....	Berwyn, Pa.	
Castle Company, Wilmot.....	Rochester, N. Y.	Conformal Footwear Co.....	St. Louis	DeVilbiss Co.....	Toledo	
Cayo Co.....	San Antonio, Texas	Contl Products Corp.....	New York City	Ditograph Sales Corp.....	New York City	
Cervelim Products Corporation.....	New York City	Cooperative Med. Adv. Bureau.....	Chicago	Dietene Co.....	Minneapolis	
Cerophyl Laboratories.....	Kansas City, Mo.	Corn Prod. Refining Co.....	New York City	Do/More Chair Co., Inc.....	Elkhart, Ind.	
Chicago Dietetic Supply House.....	Chicago	Cradle Car Service, Inc.....	St. Louis			

THE TECHNICAL EXPOSITION

JOUR. A. M. A.
MAY 4, 1913

this display in Booth 220. You will also see a new micro-balance and a new micro-fluorescence lamp for the certain diagnosis of tubercular bacilli.

SANBORN COMPANY Booth 79

TAYLOR INSTRUMENT COMPANIES
Taylor will show for the first time the new time-saving Tycoos book type blood pressure cuff. Also on display at Booth 118 will be the famous Pavaex glass boot for the treatment of frost-bite, gangrene, etc., Tycoos Aneroid Sphygmomanometer, the Mercurial Sphygmomanometer and several popular brands of Taylor fever thermometers.



WELCH ALLYN COMPANY
On display in Booth 91, the Welch Allyn Co. will have a number of new and improved diagnostic instruments. Included will be several types of Laryngoscopes, a new Ophthalmoscope, nasal speculum, episiotomy guide and those increasingly popular bakelite rectal sets.

* Dietetic Products

AMERICAN CAN COMPANY
All registrants at the convention are cordially invited to call at Booths 102 and 103 where information will be available concerning those aspects of commercially canned foods which are of greatest interest to the medical profession. The American Can Company's modern, single-service, patented milk container will also be featured.

AMERICAN INSTITUTE OF BAKING
Here you will be shown the latest research findings on various nutritive aspects of all types of breads and bakery products. This includes new data on the calcium content of white bread and the fortification of white bread with vitamin B₁. Accepted literature on bread in normal and reducing diets will also be available. Booth 284A.

BEECH-NUT PACKING COMPANY
Their complete line of strained and chopped foods for babies will be exhibited by the Beech-Nut Packing Co. in Booth 325. You will notice that one of the outstanding features is that all foods are glass-packed. The dietitian in charge will give you information about these and their other products.

BEST FOODS, INC.
Two unusual features will make this exhibit worth your seeing. A series of three dimensional color photographs showing the process of manufacturing Nucoa—and the other, a Hilgr Quartz Spectrophotometer, a new machine from England which measures the vitamin content of food. See the Nucoa exhibit in Booth 47.

BORDEN COMPANY
A visit to the Borden Booths, 273 & 274 will acquaint you with Biolac, that popular liquid infant food designed to give the artificially fed baby both the nutritional and digestive advantages of breast-fed. Also exhibited will be these Borden products: Dryco, Beta Lactose, Klim, Merrel-Soule Products and Irradiated Evapo-



CEREVIM PRODUCTS CORP.
The manufacturer of the nutritious pre-cooked cereal product, Cerevim, will demonstrate the unique aspects of this accepted food formula for infants and growing children. Other products on display will be V.B.W., a delicious vitamin B₁ wafer designed to provide pleasantly the daily requirement of B₁, and Candi-Tips, a novel combination tongue depressor and lollipop for examining the young. Booth 8.



CEROPHYL LABORATORIES
The cereal grass product that attracted so much attention at the Chemical Meeting in Cincinnati will be exhibited at Booth 305. A cordial invitation to visit their booth is extended by the Cerophyl Laboratories (a division of American Dairies). Representatives will be on hand to discuss the value of Cerophyl in special and therapeutic diets.



CHICAGO DIETETIC SUPPLY HOUSE

Foods that give more variety to the lower carbohydrate diet will be featured at Booth 212. And dietitians will be present to give you full information on the use of Cellu packed fruits without sugar, sugar-free desserts and their many other products for the diabetic diet.

CITRUS CONCENTRATES, INC. Booth 289A

CORN PRODUCTS REFINING COMPANY
Make this exhibit in Booth 324 a "must" on your itinerary. "Corn Products" will feature an effective display telling the vital facts about dextrose food-energy sugar and its place in the medical field as well as in food industries. Displayed will be Karo-Brand Dextrose, which in and have a talk with their representative.



HAROLD H. CLAPP, INC.
Originators of commercially-prepared Strained Baby Foods and Chopped Junior Foods, Clapp will display all twenty-nine varieties of these foods. Featured will be their newly-introduced Clapp's Rennet Desserts, available in six flavors. Attendees will explain how Rennet Desserts are made with milk and contain the enzyme rennin which enhances the digestibility of milk, thus making it an ideal dessert for children, as well as for many adults. Booth 81.

DIETENE COMPANY
Here's your opportunity to have Dietene explained and to secure detailed analysis. Booth 340. Know why you can confidently recommend it as a dietary supplement of real nutritional value. This special purpose low calorie food is said to take the counting out of calories. Call at the Dietene booth at your own convenience.

FLORIDA CITRUS COMMISSION
This exhibit, Booth 321, will feature both fresh and canned Florida citrus fruits. The interesting thing about the Commission is that it's a state body, functioning under state laws designed to regulate and promote the citrus industry for the benefit of consumers and growers.

GENERAL FOODS CORP.
Stop at Booth 76 and have a cup of delicious Sanka Coffee. This choice blend of Central and South American coffees has 97% of the caffeine removed. And according to the Council on Foods, it is "free from caffeine effect and can be used when other coffee has been forbidden." You'll find that Sanka Coffee is now available in both the drip and regular grind.



GENERAL MILLS, INC.
A display featuring the manufacture of A.R.P.I. Process Vitamin D will be the center attraction of Booth 368. You will see in amusing and pictorial fashion how vitamin D is produced by activation of ergosterol with low velocity electrons. Other General Mills products exhibited will be Wheaties, Kix, Bisquick, Softasilk and Gold Medal Flour.

GERBER PRODUCTS COMPANY



Ten new foods which have just been added to the Gerber Foods will be on display in the Gerber Booth 122. Copies of the professional literature and the booklets for mothers are there for your examination. They will be sent to you on request. Leave your name with representatives at the Gerber exhibit.

CHR. HANSEN'S LABORATORY
Booth 343 is one to visit along about lunch time. "The 'Junket' Folks" will serve Rennet-eustards made with either "Junket" Rennet Powder or "Junket" Rennet Tablets. Other "Junket" Products also played. Enlarged photographs will show how the rennet enzyme in rennet-eustard transforms milk into softer, finer curd. Learn why rennet-eustards are recommended for children, convalescents, the whole family. Fully informed attendant on duty.

HAWAIIAN PINEAPPLE COMPANY
Again this year the Hawaiian Pineapple Co. will supply all the convention guests with cool, refreshing glasses of Dole Mac-apple Juice from Hawaii. Delegates are urged to stop at the Pineapple booth for a discussion of Dole Pineapple products—both juice and fruits. It will be Booth 308!

H. J. HEINZ COMPANY
Physicians interested in prescribing for the feeding of infants, older children or adults requiring soft diets, will be welcomed at the new Heinz exhibit. Strained and finely displayed and representative in attendance will be happy to supply information on these foods. Ask about the 8th edition of the Heinz Nutritional Charts. Booth 65.



IRRADIATED EVAPORATED MILK INST.
At the Institute exhibit, physicians may obtain free instruction and advice on the nutritive value of irradiated evaporated milk, its uses in infant feeding, milk allergy, special diets and low-cost family feeding; also information on recent clinical research establishing the efficiency of irradiated evaporated milk in rickets prevention and production of linear growth in infants. Booth 119.

LIBBY, McNEILL & LIBBY Booth 123

EXHIBITORS

- | | | | |
|------------------------------|----------------------|----------------------------------|---------------------|
| Drug Products Co., Inc. | Long Island City | Hamilton Mfg. Co. | Two Rivers, Wis. |
| Duke Laboratories, Inc. | Stamford, Conn. | Hanoria Chem. & Mfg. Co. | Newark, N. J. |
| DuPont Film Mfg. Corp. | New York City | Hansen's Lab. Inc. | Little Falls, N. Y. |
| E. & J. Co. | Philadelphia | Hawaitan Pineapple Corp. | New York City |
| Earnshaw Knitting Co. | Newton, Mass. | Heinz Co., H. J. | San Francisco |
| Eastman Kodak Co. | Rochester, N. Y. | Herz-Lasker Corp. | Pittsburgh |
| Eisels & Co. | Nashville, Tenn. | Hoeber, Inc. | New York City |
| Electro Surgical Inst. Co. | Rochester, N. Y. | Hoffmann-La Roche, Inc. | New York City |
| Emerson Co., J. H. | Cambridge, Mass. | Holland-Flint Co., Inc. | Nutley, N. J. |
| Endo Products, Inc. | Richmond Hill, N. Y. | Hospital Liquids Inc. | New York City |
| Enochs Manufacturing Co. | Indianapolis | Hypela | Chicago |
| Fisher & Co., H. G. | Chicago | Hynson, Westcott & Dunning, Inc. | Baltimore |
| Filat, Eaton & Co. | Decatur, Ill. | | |
| Florida Citrus Commission | Lakeland, Fla. | | |
| Foley Manufacturing Co. | Minneapolis | | |
| Foregger Co., Inc. | New York City | | |
| Fougera and Co., Inc. | New York City | | |
| Gastro-Phot Laboratories | New York City | | |
| General Electric X-Ray Corp. | Chicago | | |
| General Foods | New York City | | |
| General Mills, Inc. | Minneapolis | | |
| Gerber Products Company | Fremont, Mich. | | |
| Geraert Co. of America, Inc. | New York City | | |
| Gradwohl Laboratories | St. Louis | | |
| Graham, H. L. | Dallas, Texas | | |

MEAD JOHNSON & CO.
Two new sizes of Pabulum will be exhibited in Mead Johnson's display, Booths 238 and 239. The 1 lb.-2 oz. size (replacing the 1-lb. size) offers 2 extra ounces without additional charge. The new ½-lb. size is small enough to be grasped in one hand, convenient for traveling and is priced very reasonably. Stop in at the other Mead Johnson Booths, 131, 348 and 349.

MELLIN'S FOOD COMPANY
Come and bring your questions regarding the composition and usefulness of Mellin's Food to Booth 249. It is suggested that you will find as particularly interesting topics constipation in infancy and the preparation of nourishment for adult patients below normal as a result of prolonged illness or faulty diet.

M & R DIETETIC LABORATORIES, INC.
Similac, a completely modified milk for infants deprived either partially or entirely of breast feeding, will be displayed by M & R Dietetic Laboratories, Booth 267. Qualified representatives will gladly explain the value of the zero curd tension of Similac as it applies to both normal and special feeding cases. Visit Booth 267.



MULLER LABORATORIES
Mull-Soy will be displayed in Booth 286. The points of advantage of this soy bean milk-substitute in the diets of those persons who are allergic to cow's milk will be explained — as will the other uses for this interesting product. Diets and recipes will be available to all visiting physicians.

NATIONAL LIVESTOCK & MEAT BOARD
Booth 306

NESTLE'S MILK PRODUCTS, INC.
Nestle's Milk Products have arranged for a very attractive exhibit in Booth 327. Featured in their display will be Lactogen, which for 15 years has given successful results in infant feeding. Physicians interested in infant feeding are cordially invited to visit the Nestle Booth.

PENICK AND FORO, LTO., INC.
The makers of Brer Rabbit Molasses invite your consideration of new findings on this rich and inexpensive source of iron. Results of chemical, biological and clinical research will be exhibited at Booth 335. Significant is the conclusive demonstration of high availability (over 80%) of molasses-iron, which establishes New Orleans Molasses as second only to beef liver as a food source of absorbable iron.

PET MILK CORPORATION
An actual working model of a milk condensing plant in miniature will be exhibited by the Pet Milk Company in Booth 111. This exhibit offers an opportunity to obtain information about the production of Irradiated Pet Milk and its uses in infant feeding and general dietary practice. Miniature Pet Milk cans will be given to each physician who visits the Pet Milk booth.



POSTUM EXHIBIT
Postum will be served at Booth 62! This wholesome cereal beverage is made from whole wheat and bran, roasted and slightly sweetened. On exhibit in two forms—Postum cereal made like coffee and Instant Postum

made instantly in the cup or pot. Postum-made-with-milk is an easy way to keep milk interesting. Pause for Postum! You'll find it delicious, economical and easy to prepare!

OR. P. PHILLIPS CANNING CO.
Be sure to visit this exhibit in Booth 73 and sample the delicious Dr. Phillips Fruit Juices enriched with Dextrose food-energy sugar. You'll find a Florida atmosphere about this exhibit, typical of his famous citrus fruit groves in Orlando, Fla. Stop in and find out about these delicious fruit juices by testing a glass of golden orange or grapefruit juice.



SCIENTIFIC SUGARS CO.
Booth 83
S.M.A. CORPORATION
An exhibit sponsored by Biochemical Division of S.M.A. will occupy Booth 86 and will feature color slides illustrating clinical cases and pure substances used in their treatment. Next door in Booth 87, the infant food division of S.M.A. will be exhibiting their products, including S.M.A. Powder and Liquid, Hypo-Allergic Milk and Alerdex.

SUN-RAYED COMPANY
The producers of Kemp's Sun-Rayed Tomato Juice will have a glass of this cool, refreshing fruit juice waiting for you in Booth 56. Be sure to stop in and learn how their patented process secures the high retention of vitamins A and C in this delicious tomato juice.

UNITED FRUIT COMPANY
Important clinical and nutritional studies on the banana have been undertaken the past few years. These reports, now published, will be available for your inspection at this company's booth, 138. And you will be welcomed by representatives of the United Fruit Co. equipped to give you the latest authentic information.

VEGEX, INC. & VITAMIN FOOD CO., INC.
Booth 278

WIS. ALUMNI RESEARCH FOUNDATION
Last year at the New York World's Fair 100 days of the 183-day period were rainy, cloudy, or overcast. New York's average shows only 53 sunshiny days from May to October. These and many other facts relating to vitamin D deficiencies and irradiated vitamin D products will be featured at the Foundation's exhibit. All visiting physicians are very cordially invited to stop at Booths 15 and 16.

** Medical Books*

O. APPLETON-CENTURY CO., INC.
Booth 107

BLAKISTON COMPANY
Of practical interest to the general physician and specialist will be Blakiston's exhibit of new books and new editions in Booth 229. Included will be Osgood's Laboratory Diagnostics, 3rd Ed., Wright's Manual of Dermatology, Eilmann's Medicolegal and Industrial Toxicology, Whitty and Britton's Disorders of the Blood, 3rd Ed., and specimen sheets of several forthcoming books.

BOOKS OF UNIVERSITY PRESSES
Booth 370

F. A. OAVIS COMPANY
New Davis publications for you to look through, in Booth 260, will be: Reimann "Treatment in General Medicine," Piersol "The Cyclopedia of Medicine, Surgery and Specialties," Bland "Medical and Surgical Gynecology," Goldberg "Clinical Tuberculosis," Lederer "Ear, Nose and Throat," Robertson "Obstetrics," and Syndromes," and Treatment of the first all-inclusive work on this very important branch of medicine.

PAUL B. HOEBER, INC.
Among the brand new Hoeber books to be shown are: Pack and Livingston's Treatment of Cancer, Alvarez's Introduction to Gastro-Enterology, Hassin's Histopathology of the Central and Peripheral Nervous System, Warren's Handbook of Skin Diseases and many others. All in all, the Hoeber exhibit promises to be an interesting one in which to browse. Booth 125.

LEA & FEBIGER
At Booth 117, Lea & Febiger will feature these new works: Adair's Obstetrics and Gynecology, Clement's Anesthesia, Comroe on Arthritis, Eller on Tumors of the Skin, Hayden on the Rectum and Colon, Lewin on the Foot and Ankle, Schwartz and Tullipan on Occupational Diseases of the Skin. Advance material will be shown on Anderson's Physical Diagnosis, Ballenger's Otology and Dennis and Pakula on Congenital Syphilis.

J. B. LIPPINCOTT COMPANY
Interesting Lippincott Publications on display in Booths 132 and 133 will be Kugelmass' "Newer Nutrition in Pediatric Practice" and Becker and Obermayer's "Modern Dermatology and Syphilology." "Functional Disorders of the Foot" by Dickson and Diveley, and Lemman's brand new book, "Management of the Cardiac Patient." Other works will include Thorck's "Modern Surgical Technique," Rigler's "Outline of Roentgen Diagnosis," Barbkorn's "Treatment by Diet" and many more.

MACMILLAN COMPANY
A new and clinical application of the tinctures of disease. No approach is Holmes' "Bacillary and Rickettsial Infections." And you'll find H. Hohnman's "As the Twig is Bent" a refreshing, commonsense discussion of child-raising. These will be among the newer books on display at the Macmillan exhibit, Booth 213.

G. V. NOSBY COMPANY
Booth 230

THOMAS NELSON & SONS
Booth 299 will feature Nelson's display of loose-leaf medical publications. In addition to the well-known Loose-Leaf Medicine and Surgery, the publishers will also exhibit these new loose-leaf publications: Diagnostic Roentgenology, Surgery of the Ear, Medicine of the Ear and their new two-volume work, Specialties in Medical Practice.

OXFORD UNIVERSITY PRESS
Many recent Oxford publications will be displayed in Booth 70, including "Pulmonary Tuberculosis," Page and O'Connell's "Anatomy of Bone and Joint," and "Examination of the Urine" by Lukes and "The Urine" by Za and Goldberg. Also Oxford Loose-Leaf Medicine—a collection of medical monographs of leading world authorities—edited by Dr. Henry A. Christian.

E X H I B I T O R S		
International Cellucotton Prod. Co.....	Chicago	
International Vitamin Corp.....	New York City	
Irrad. Exap. Milk Institute.....	Chicago	
Ivers-Lee Co.....	Newark, N. J.	
Johnson & Johnson.....	New Brunswick, N. J.	
Jones Metabolism Equip. Co.....	Chicago	
Jordan Air & Suction Pump Co.....	Kan. City, Mo.	
Juvenile Wood Products, Inc.....	Fl. Wayne, Ind.	
Kelley-Koett Mfg. Co., Inc.....	Covington, Ky.	
Keystone Vlew Co.....	Nearville, Pa.	
Kitchen Katch-All Corp.....	Greenwich, Ohio	
Kolynos Co.....	Jersey City, N. J.	
Laeco Products Inc.....	Baltimore	
Lakeside Laboratories, Inc.....	Milwaukee	
LaMotte Chemical Products Co.....	Baltimore	
Lea & Febiger.....	Philadelphia	
Lederle Laboratories, Inc.....	New York City	
Lepel High Frequency Labs. Inc.....	New York City	
Lewis Manufacturing Co.....	Walpole, Mass.	
Libby, McNeill & Libby.....	Chicago	
Liebel-Flarsheim Co.....	Cincinnati	
Lilly and Co., Eli.....	Indianapolis	
Linde Air Products Co.....	New York City	
Lippincott Co., J. B.....	Philadelphia	
Luzler's, Inc.....	Kansas City, Mo.	
M & R Dietetic Labs. Inc.....	Columbus, Ohio	
Macchelt Laboratories, Inc.....	Springdale, Conn.	
Macmillan Co.....	New York City	
Malco Co., Inc.....	Minneapolis	
Malinekrodt Chemical Works.....	St. Louis	
Malline Co.....	New York City	
Marbel Blood Calculator Co.....	Chicago	
Marcelle Cosmetics.....	Chicago	
Marvel X-Ray Products.....	Chicago	
Mattern Mfg. Co., F.....	Chicago	
McCaskey Register Co.....	Alliance, Ohio	
McIntosh Electrical Corp.....	Chicago	
McKesson Appliance Co.....	Toledo	
McKesson & Robbins, Inc.....	New York City	

W. F. PRIOR COMPANY, INCORPORATED
Booth 67

W. B. SAUNDERS COMPANY
Physicians are invited to look over Saunders' display of new books and new editions in Booths 129 and 130. Of special interest will be: Buckstein's "X-Ray of the Abdomen," Walters and Snell's "Diabetes Mellitus," "Clinical Heart Disease," Hausser's "Diseases of the Foot" and many others, including such standard works as: "Surgical Clinics of North America" and Bickham's "Operative Surgery."

SURGERY, GYNECOLOGY AND OBSTETRICS
Pages from this journal for surgeons, emphasizing its contents, its superb typography and its beautiful illustrations, many of these in color, will be shown by means of "translucents." A robophone voice will briefly describe the purpose of the journal and the features which recommend it to more than 14,000 regular subscribers throughout the world. You are cordially invited to visit Booth 218.

CHARLES C. THOMAS, PUBLISHER
Booth 78

WILLIAMS & WILKINS COMPANY
Booth 134 will give most physicians their first opportunity to examine this firm's most important 1940 publication, Barr's Modern Medical Therapy, which has 106 contributors. All the famous William Wood books will be exhibited. New books will include Armstrong's Aviation Medicine; Brock's Injuries of Skull; Robbins' Cyclopropane Anesthesia and many others.

* Office Furniture

W. D. ALLISON COMPANY
This year marks Allison's 56th year of manufacturing physicians' wooden office furniture. At their display in Booth 283A, you will see the representative line. Improvements which have been added will make a visit of inspection worthwhile.

DOMORE CHAIR COMPANY, INC.
A display of posture chairs for the executive, clerical and factory staffs will be seen in Booth 367. Of special interest will be the Triple Duty Executive models. Also notice the "Air-Duct" model, developed to promote coolness through evaporation of skin moisture. Your visit to the exhibit will be worthwhile.

HAMILTON MANUFACTURING CO.
In Booth 137, the Hamilton Manufacturing Co. will have out for display four of the latest designs in examining tables with matching instrument cabinets and treatment cabinets. The new extra large size DeLuxe table will be on actual exhibit. You are invited to inspect it personally.

EMIL J. PATOAR COMPANY
Booth 309 deserves the attention of every physician interested in refitting his office. The Patoar Company will show two beautiful sets of furniture for the physician's office, both built of walnut and combining comfort with stability. Stop in and ask for suggestions for your office—or feel free to just look.

Mead Johnson & Co. Evansville, Ind.
Mechanical Laboratories, Inc. Miami, Fla.
Medical Bureau. Chicago
Medical Case History Bureau. New York City
Medical Film Guild. New York City
Medicallite Co., Inc. New York City
Mellin's Food Co. Boston
Mennen Co. Newark, N. J.
Merck & Co. Inc. Rahway, N. J.
Merrell Company, Wm. S. Cincinnati
Meth Mfg. Co. Philadelphia
Meyer Co., Wm. Chicago
Meyrowitz Surg. Inst. Co., E. B. New York City

Mosby Co., C. V. St. Louis
Mueller & Co., V. Chicago
Muller Laboratories. Baltimore
Multist, Inc. New York City
National Drug Co. Philadelphia
National Elec. Inst. Co. Inc. Long Island City
National Live Stock & Meat Board. Chicago
National X-Ray Surveys, Inc. Orange, N. J.
Nelson & Sons, Thomas. New York City
Nestlé's Milk Products, Inc. New York City
New York Medical Exchange. New York City
Nu-Hesive, Inc. Leominster, Mass.

THE TECHNICAL EXPOSITION



SHAMPAINE COMPANY
Booth 106

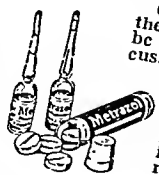
* Pharmaceuticals and Biologicals

ABBOTT LABORATORIES
You are urged to drop in at Booths 233 and 234 and discuss with Abbott's trained representatives the newer products. Among such new Council Accepted products are: Pentothal Sodium, Fungus Spore Extracts, Sulfanilamide Ampoules, Nicotinic Acid, Thiamin Chloride, etc. Your queries will be welcomed.

ALLEN LABORATORIES, INC.
To any physician concerned with the treatment of vaginal and cervical infections, Booth 145 will hold a special attraction. On exhibit will be Medipax Brand of Tampon Suppositories, a complete unit for prolonged contact therapy of gynecologic conditions. Let the doctors in attendance explain Medipax advantages.

ARLINGTON CHEMICAL COMPANY
An inspection of Arlington's Protein and Pollen Products for the diagnosis and treatment of hayfever, asthma and other allergic conditions will prove worth your while. Each physician who visits their booth will be presented with a complimentary diagnostic pollen outfit for his arch containing the common causative factors. Questions and discussion will be welcomed. Booth 24.

ARMOUR LABORATORIES
Standardized and biologically assayed, Council Accepted and U.S.P. products of animal origin will be featured at the Armour Booth, 55. Their various preparations will be explained by men experienced in clinical and biological research. A cordial invitation is extended to all A.M.A. members to visit the exhibit.



CIBA PHARMACEUTICAL PRODUCTS
Physicians are cordially invited to visit the Ciba exhibit, Booth 247, where the Assistant Medical Director and representatives of the firm will be glad to answer questions about and discuss the well-

ROYAL METAL MANUFACTURING CO.
In addition to their office and reception room, this firm will introduce a new line of furniture. It will consist of examining chairs, patients' couches, stool and side chairs and steel cabinets. Display pieces will be exhibited and full information available in Booth 362.

Jour. A. M. May 4, 1941
known Ciba specialties. Among these are Digifoline, Dial, Lipiodol, Nupercaine and Vioform. Your call will be welcomed.



CHURCH & DWIGHT CO., INC.
Representatives of the company will be on hand in Booth 136 to discuss Arm & Hammer Bicarbonate of Soda with you. They will tell you why the company is a pioneer in the business, make this pure product available at such a low cost for a visit.

CUTTER LABORATORIES
Cutter Laboratories will feature their complete line of Council Accepted biologicals and allied specialties. Among the latter, Sobisminol Juvant syphilis therapy of dextrose and other solutions in the special Saffilasks dispensing containers will be of particular interest. Booth 116.



DRUG PRODUCTS CO., INC.
You are invited to visit Booth 341 where The Drug Products Co. will exhibit Pulvoids Digitalis Folium, a mode of digitalis therapy biologically standardized by the Hatcher-Brody cat method, Pulvoids Sulfamide, and Hyposols Sodium Cacodylate. All Council-Accepted Products. Attendees will be pleased to explain Pulvoids method of manufacture.

FLINT, EATON & COMPANY
You will find an interesting display of Calcium-Gluconate-Effervescent (Flint) at Booth 337. On hand to greet you will be several members of their staff. They will be glad to discuss "Calcium Requirements" with you and likewise will be much interested in your experiences with the product. Complimentary souvenirs of the convention will be presented to registrants. Your visit will be anticipated.

E. FOUGERA & CO.
At Booth 64, E. Fougere & Co. will feature Lipiodol (Lafay) the original iodized oil. You can see how easily it is instilled into virtually every body cavity—yielding clarity. Lipiodol's many advantages will be described and explained.

HOSPITAL LIQUIDS, INC.
In Booth 60, you can test your stereopsis. Through the magic of the stereoscope, accurate three dimensional color photographs of their products and processes will be shown. Pyrogen and qualitative testing of their Council Accepted Intravenous Solutions in Filtrair Dispensers will be a feature of the Hospital Liquids exhibits this year—with an actual working model laboratory in Booth 283. Doctors are invited to both exhibits.

INTERNATIONAL VITAMIN CORP.
"The House of Vitamins" display this year at Booth 147 will feature the production of Vitamin A and D from fish liver oil by the Marcus Process, together with a complete showing of I. V. C. Council Accepted products. A unique key ring and automobile license holder will be given free to every physician who registers at the I. V. C. Booth.

EXHIBITORS

Ohio Chemical & Mfg. Co. Cleveland
Oldsmobile. Lansing, Mich.
O'Leary Inc., Lydia. New York City
Oxford University Press. New York City
Paldar Co., Emil J. Chicago
Parker, Davis & Co. Detroit
Patch Co., E. L. Boston
Patterson Screen Co. Towanda, Pa.
Pellon & Crane Co. Detroit
Penick & Ford, Ltd., Inc. New York City
Pet Milk Co. St. Louis
Petrolagar Laboratories, Inc. Chicago

LAKESIDE LABORATORIES, INC.
Lakeside's Council-Accepted ampoule medications will be exhibited in Booth 124. Members of the research staff will be present to discuss the chemical, bacteriological and physiological control methods used to insure purity, sterility and safety. Your visit will be welcomed.

LEDERLE LABORATORIES, INC.
Anemia, pneumonia and hay fever will be the subjects covered in the Lederle Exhibit, Booths 108 and 109. Approved diagnosis and therapy will be graphically illustrated. A colorful reproduction of the new Lederle diagnostic package showing actual color drawings of the offending poisons by zones in full color transparencies will be automatically lighted showing simultaneously boundary zone, nomenclature and plant. A Lederle staff physician will be in charge.

ELLI LILLY AND COMPANY
Lilly this year will center their exhibit around a demonstration of the method for testing "Merthiolate" (Sodium Ethyl Mercuri Thiosalicylate, Lilly) and other antiseptics. This should be interesting to all physicians. A display of other important Lilly products will be attractively presented in Booths 226, 227 and 228. Visit all these booths and discuss your problems with the attendants.

LINCOLN AIR PRODUCTS COMPANY
A composite picture of present day oxygen therapy will be presented in Booth 114. The exhibit will feature an actual piping system carrying oxygen from a central supply source of ten manifold cylinders of Linde Oxygen U.S.P. to a number of standard wall outlet valves. The new Linde L-14 Oxygen Therapy Station Flowmeter and the Linde R-50 Oxygen Therapy Regulator will also be displayed.

McKESSON & ROBBINS, INC.
McKesson vitamin and drug products will be featured in Booth 149. Of particular interest to the physician will be an educational exhibit in pictures, showing the work carried on at the company's research and manufacturing plant. The director of laboratory research will be in charge, assisted by the members of the laboratory staff.

MALLINCKRODT CHEMICAL WORKS
You are invited to visit Booth 286 and to discuss questions relative to the chemicals on display or other products bearing the Mallinckrodt label. A limited number of photographic chemicals will be exhibited along with the usual U.S.P. chemicals, specialty items and reagent chemicals.

MALTINE COMPANY
Booth 144, occupied by the Maltine Co., will feature Maltine with Cod Liver Oil. Sixty-five years of research and experiment have gone into the development of all Maltine products, including the Council-Accepted Maltine Plain, Maltine with Cod Liver Oil and Maltine with Cod Liver Oil and Iron Iodide. A visit to this booth will give you confidence in the high quality and natural vitamin content of their products.



MERCK & COMPANY
The central theme of the Merck display, Booths 279 and 280, will have featured vitamins of the B complex, surmounted by an enlarged vitamin B₁ crystal. The flanking panels will display other Merck vitamin products and sulfanilamide preparations. Merck medicinal specialties and prescription chemicals will be demonstrated.

WM. S. MERRELL COMPANY
The Merrell Company invites you to drop in at Booth 248 and leave your name for interesting literature. Featured at this exhibit will be the topical anesthetic, Diothane Hydrochloride.

NATIONAL DRUG COMPANY
Rhus Tox Antigens and Pollen Antigens will be prominently featured at Booth 127. Members of the Research and Swiftwater Biological Laboratories staffs will be in attendance to demonstrate and discuss the various phases of National biological, biochemical and pharmaceutical products.

PARKE, DAVIS COMPANY
Featured in the Parke-Davis Exhibit will be:
- elin and Theelol;
- h as Mapharsen
- or lobe prepara-
- Pitocin and Pi-
tressin; and various adrenalin chloride preparations. Booths 36 and 37.

E. L. PATCH COMPANY
The romance of cod liver oil as depicted by a photomontage will be unfolded at the interesting exhibit of the Patch Company in Booth 268. For years cod liver oil has been one of the most widely dependable sources of natural vitamins A and D, and Patch's Cod Liver Oil has a very high potency of both vitamins A and D. They invite your inspection of their exhibit.

PETROLAGAR LABORATORIES, INC.
Company
lagar exhibit
for visitors
recent developments and new ideas on the use of the five types of Petrolagar in the treatment of constipation. According to reports, you will want to make this one of your "must" stops during the convention.

PURITAN COMPRESSED GAS CORPORATION
Save yourself a few minutes for a visit to Booth 45 where you will find an interesting exhibit of Puritan Maid medical gases and a complete line of gas equipment. Of particular interest will be the new Puritan Mask and Bag and two-stage pressure regulator which have been found to be widely adaptable for use in inhalation gas therapy. Ask for their catalog 27.

RIEDEL-de HAEN, INC.
Their exhibit in Booth 68 will present Decholin and Decholin sodium, which are Council Accepted chemically pure bile acid derivatives. Physicians are invited to register for their copy of the new 3rd edition of the brochure, "Biliary Tract Disturbances." Competent representatives will be there to discuss particular problems regarding hepatic and biliary tract disorders.

SANDOZ CHEMICAL WORKS, INC.
Among the Council-Accepted pharmaceuticals of Sandoz in Booth 38, special attention will be focused on Gyncergen (ergotamine tartrate) extensively employed for the dramatic relief of migraine and uterine hemorrhages; the gluconate preparation of calcium (Calglucon) whose advantages for oral, intramuscular and intravenous calcium therapy were developed in the Sandoz Research Laboratories; Seillareu and Seillareu-B, dependable cardiotonics; and Sandoptal, an efficient hypnotic.

SCHERING CORPORATION
New machines and technique for ampule preparation will be demonstrated at the Schering exhibit. Radiopaque media for use in urologic diagnosis will be shown, and visualization of the urinary tract by both excretory and retrograde methods to reveal details of its anatomy and functions will be discussed. All in Booth 292 A.

SCHERING & GLATZ, INC.
Booth 94

G. O. SEARLE & CO.
The "Phantascope" will be the feature of the Searle exhibit, Booth 292. This ingenious device, developed by Dr. George Levene of the Massachusetts Memorial Hospitals, Boston, graphically portrays in motion various typical pathologic alterations in cardiac contour and rhythm. Several members of the Searle Medical Service Department will be on hand to discuss products of their research laboratories.

SHARK INDUSTRIES, INC.
Booth 242

SHARP & DOHME, INC.
The big attraction at the Sharp & Dohme display this year will be Propadrine Hydrochloride. In addition to this well-known bronchodilator and local vasoconstrictor, there will be on display other items of interest in both the pharmaceutical and biological field. All physicians are cordially invited to visit Booths 352, 353, and 354. Competent, well-informed representatives will be on hand to furnish information.

SMITH-DORSEY COMPANY
Physicians are cordially invited to visit The Smith-Dorsey Booth 290, where they will find on display chocolate flavored Emulsion Liquid Petrolatum and other Council Accepted products. Representatives in charge of the exhibit will be glad to furnish full information about products shown.

SMITH, KLINE & FRENCH LABORATORIES
This company's exhibit, Booth 121, will be arranged for self-service. No registration required. Up to date information on Bezedrine Inhaler, Benzadrine Sulfate Tablets, Bezedrine Solution and Pent-nucleotide may be obtained in convenient envelopes from literature dispensers. Additional data will be supplied by company representatives.

E. R. SQUIBB & SONS
Something new in technical exhibits awaits you at the Squibb booths. The physician interested in the sex hormones, the treatment of syphilis, pneumonia, or in certain vital problems in anesthesia, should be sure to see the new Squibb exhibit specially designed and constructed for this session. Booths 98, 99, 100, 101, main floor.

FREDERICK STEARNS & COMPANY
Doctors are cordially invited to visit Booth 34 to view and discuss Stearns' contributions to medical science. All possible information on the use of such products as Neo-Synephrin Hydrochloride for intranasal use and Sterile Solution for parenteral use in acute hypotension and spinal anesthesia will be supplied. Also available will be information on Gasric-Stucin-Stearns, Appellin Apple Powder-Stearns and other products.

WALLACE & TIERNAN PRODUCTS, INC.
Booth 200

WHITE LABORATORIES, INC.
Well-trained representatives of White Laboratories will be on hand in Booth 293 to present and discuss with you Council-Accepted White's Cod Liver Oil Concentrate (liquid, tablets and capsules). Other information regarding the vitamin field will be available, too.

EXHIBITORS

Pfaltz & Bauer, Inc.....New York City
Philip Morris & Co. Ltd. Inc.....New York City
Phillips Metallix Corp.....New York City
Phillips Canaling Co., Dr. P.....Orlando, Fla.
Picker X-Ray Corporation.....New York City
Pillmag & Son Co., Geo. P.....Philadelphia
Prior Co., Inc., W. F.....Hagerstown, Md.
Prometheus Electric Corp.....New York City
Pronto Add. & Mail. Serv., Inc.....New York City
Puritan Compressed Gas. Corp. Kansas City, Mo.
Pyramid Rubber Co.....Ravenna, Ohio
Radium Chemical Co., Inc.....New York City

Radium Emanation Corp.....New York City
Remington Rand Inc.....Buffalo
Riedel-de Haen, Inc.....New York City
Ritter Dental Mfg. Company...Rochester, N. Y.
Rose Mfg. Co., Inc., E. J.....Los Angeles
Royal Metal Mfg. Co.....Chicago
S. M. A. Corp.....Chicago
Safety Gas Machine Co., Inc.....Chicago
Santborn Co.....Cambridge, Mass.
Sandoz Chemical Works, Inc.....New York City
Saunders Co., W. B.....Philadelphia
Seallan-Morris Co.....Madison, Wis.

Scherlag Corp.....Bloomfield, N. J.
Schering & Glatz, Inc.....New York City
Scientific Sugars Co.....Columbus, Ind.
Sealright Co., Inc.....Fulton, N.Y.
Searle & Co., G. D.....Chicago
Selby Shoe Co.....Portsmouth, Ohio
Shampaine Co.....St. Louis
Shark Industries, Inc.....Hollywood, Fla.
Sharp & Dohme.....Philadelphia
Siebrandt Mfg. Co., J. R.....Kansas City, Mo.
Sklar Mfg. Co., J.....Brooklyn
Smith-Dorsey Co.....Lincoln, Neb.
Smith, Kline & French Labs.....Philadelphia

WINTHROP CHEMICAL COMPANY, INC.



Something new in pharmaceutical displays is contemplated by Winthrop Chemical Company, Inc., Booths 224 and 225. A fascinating motion device, combined with impressionistic photography, will call attention to a number of important therapeutic agents. A sidelight of interest to philatelists will be an array of handsome medical medical stamps.

JOHN WYETH & BROTHER, INC.

Here's a cordial invitation from John Wyeth and Brother for you to visit their Booths 236 and 237, where Dean Cornwell's two heroic paintings will be on display. In addition to the canvas "Blument and St. Martin," the first showing of the new painting, "O-h" at Old North," will be made. These paintings are the first two in a series "Paintings of American Medicine."

* Physical Therapy and X-Ray

ADLANCO X-RAY CORPORATION
Booth 310

AGFA ANSCO
Booth 335

BEDFORD SURGICAL COMPANY

X-ray and office equipment—the complete line of Continental products, will be shown in Booths 216 and 217. Be sure to see the new streamlined shockproof fluoroscope—also the new 100/100 tilt-table combination X-ray and fluoroscope, using only one tube.

J. BEEBER COMPANY
Booths 2 and 3

BURDICK CORPORATION

Burdick's complete line of modern physical therapy equipment will be featured in Booth 282. This will include Short Wave Diathermy Units, Fever Therapy Cabinets, Ultraviolet and Infra-Red Lamps. The Rhythmic Constrictor for the treatment of peripheral vascular disease will also be featured as will the new combination Radiographic and Fluoroscopic X-Ray Unit.

WARREN E. COLLINS, INC.
Booth 141

COLUMBIAN STEEL TANK COMPANY

The Columbian Respirator, recently Council-Accepted, will be the feature exhibit in Booth 330. And even a cursory inspection will reveal several improvements. The new principle for controlling vacuum and pressure called a "liquid sealed air pump" is incorporated. Powered by a one-sixth horse power motor—it provides from 10 to 30 respirations per minute. Come in and see it yourself.

DUPONT FILM MANUFACTURING CO.

Du Pont will exhibit special radiographs and discuss any radiographic or photographic or allied problems with you. Physicians and their friends are urged to visit Booth 259.

EASTMAN KODAK COMPANY

Besides featuring a collection of radiographs, Eastman will run in Booth 231 colored Kodachrome film on medical and

other subjects. In addition, there will be a large display of clinical subjects in the form of transparencies and prints employing the Wash-off Relief Process. Technical representatives will be in attendance to answer your questions.

E & J MANUFACTURING CO.

Latest improvements to the E & J Resuscitator in ease of operation will make it well worth a visit of inspection. Movement of just one lever makes Aspirator,



the triple duty performance of the apparatus greatly advances the scientific treatment and control of asphyxia. See this combination appliance on display at Booth 146.

H. G. FISCHER & CO.

Improved performance and reduced installation costs are just two of the outstanding features of Fischer's 1910 X-ray and short wave apparatus. You are cordially invited to stop by and inspect the H. G. Fischer & Co. display in Booth 336. Questions will be answered frankly and without obligation on your part.

J. H. EMERSON COMPANY

Have a look into Booth 90 to see the newest model Emerson Respirator. You will note that it's equipped with a recently developed alarm for giving warning if the respirator ceases to function for any reason. Other new features developed by Emerson will also be pointed out.

GENERAL ELECTRIC X-RAY CORPORATION

The G-E exhibit will offer a fine opportunity to discuss your particular interest in X-ray equipment. From the G-E office-portable diagnostic unit up to the million volt equipment for radiotherapy. Drop in Booths 14 and 15 and get all the latest information on the G-E Radiometer, Fever Cabinet, Ultraviolet and Infra-Red Lamps, and other radiological equipment devices.

GEVAERT COMPANY OF AMERICA, INC.

Gevaert's exhibit comprises a showing of their latest developments for X-ray films. These exhibits are on two types of film—Screen and Screenless. Also shown will be photographic products of general interest to amateur photographers. Stop by Booth 43.

HANOVIA CHEMICAL AND MFG. CO.

Courteous and competent representatives will be on hand to welcome you to the Hanovia exhibit, Booth 347. On display will be the very latest self-lighting ultraviolet hot quartz lamps, solux radiant heat lamps, short wave and ultra short wave apparatus. Don't miss the interesting fluorescence display!

HUMPHREYS ROENTGEN COMPANY

You will be interested in seeing the new motor driven radiographic and fluoroscopic table to be shown in Humphreys' exhibit, Booths 48 and 49. Along with the new development, improved models will be shown. You will also see a new tube stand displayed.

KELLEY-KOETT MFG. CO., INC.
Booths 26, 27, 30 and 31

LEPEL HIGH FREQUENCY LABORATORIES

Latest models of the Lepel Short Wave Generators, both the spark gap operated and tube operated types, will be on display in Booth 250. In addition, other new

and useful physiotherapeutic apparatus will be shown. All members of the A. M. A. are cordially invited to visit this exhibit.

LIEBEL-FLARSHEIM CO.

You will have the opportunity to see the complete line of L-F Short Wave Generators as well as the famous Doyle Electro-Surgical Units. Other new and useful physio-therapy apparatus will also be shown and demonstrated for you, too. Visit the Liebel-Flarsheim booth, 210.

MCINTOSH ELECTRICAL COMPANY

Old customers and friends of the McIntosh Co. will find a cordial welcome in Booth 206. Here on display will be the latest models of Hogan Brevetherm short wave diathermy apparatus, the new model Polysine Generator, the Sinusstat galvanic and sinusoidal unit, and Blotite Infra-red generators and accessories.

MACHLETT LABORATORIES, INC.

X-Ray tube engineering for 1910, as advanced by Machlett, will be featured at Booths 202 and 203. A comprehensive exhibit of Machlett Tubes will include most recent improvements in shockproof, diagnostic and therapy tubes; Therman, the shockproof tube for intermediate and specialized therapy and diagnostic; the Accuray, radiographic, fluoroscopic and specialized therapy tubes; and notably, the Rotating Anode Diagnostic Tube.

MARVEL X-RAY PRODUCTS
Booth 221

F. MATTERN MANUFACTURING CO.

A display of the "Series MX" X-Ray will make a visit to Booths 1 and 2 of great interest. See its new modern floor panel control. Also plan to inspect the Model "RS,"

METH MANUFACTURING COMPANY
Booth 334

NATIONAL X-RAY SURVEYS, INC.
Booth 310

WILLIAM MEYER COMPANY
Booth 216

PATTERSON SCREEN COMPANY

Patterson's well known fluoroscopic and intensifying screens will be on display in Booth 261. Attendants in charge will be prepared to discuss the attributes of the various screens, making recommendations for the type of screen best suited to the specifications. Feel free to discuss problems and troubles or to get information regarding screens and method.

PHILIPS METALIX CORPORATION
Booth 33

PICKER X-RAY CORPORATION

Save a little time to inspect the Picker X-ray apparatus in Booths 251 and 252. On display will be the Picker-Walke Series "200" shockproof X-ray unit with motor-driven tilting table; the Picker-Walke "Century," a complete 100 MA, 100 P.A.V. shockproof unit, the Picker-Walke Vertical Monitor Control and the Picker-Walke Dual column portable-mobile unit. Your questions will be welcomed.

RADIIUM CHEMICAL COMPANY, INC.

An exhibit of their instruments for the handling and application of radium and radon will point up the attractive new features. Representatives in attendance at

(Continued on advertising page 77)

EXHIBITORS

Smith & Nephew, Inc. New York City
Sonotone Corporation Elmsford, N. Y.
Spencer Corset Co., Inc. New Haven, Conn.
Spencer Lens Co. Buffalo
Squibb & Sons, E. R. New York City
Standard X-Ray Co. Chicago
Stearns & Co., Frederik. Detroit
Storz Instrument Co. St. Louis
Sun Rayed Co. Frankfort, Ind.
Surgical Publishing Co. Chicago
Tampax Incorporated. New York City
Taylor Instrument Cos. Rochester, N. Y.

Thomas, Publisher, Charles C. Springfield, Ill.
U. M. A. Inc. New York City
Union Carbide Co. New York City
United Fruit Co. Boston
Universal Cotton Prod. Corp. Hollywood, Calif.
Vegex, Inc. & Vitamin Food Co. New York City
Wallace & Tiernan Prod. Inc. Bellerille, N. J.
Warren-Knight Co. Philadelphia
Weeco Products Co. Chicago

Welch Allyn Co. Auburn, N. Y.
Westinghouse X-Ray Co., Inc. Long Island City
White Laboratories, Inc. Newark, N. J.
Williams & Wilkins Co. Baltimore
Wilson Rubber Co. Canton, Ohio
Winthrop Chemical Co., Inc. New York City
Wisconsin Alumni Research Found. Madison, Wis.
Wolf X-Ray Products, Inc. New York City
Wright & Co. Inc., E. T. Rockland, Mass.
Wyeth & Brother, Inc., John. Philadelphia
Zimmer Mfg. Co. Warren, Ind.

OFFICIAL NOTES

ADDRESSES BY OFFICIAL STAFF

DR. PAUL C. BARTON:

May 29—George Williams College, Chicago.

DR. W. W. BAUER:

May 6—Buncombe County Medical Society, Asheville, N. C.

May 8—State and Provincial Health Authorities, Washington, D. C.

May 11—American Scientific Congress, Washington, D. C.

May 14—Schurz Tri-Hi-Y, Chicago.

May 24—Georgia Public Health Association, Atlanta.

May 27—South Carolina Public Health Association, Myrtle Beach.

DR. MORRIS FISHBEIN:

May 6—Women's City Club, Hamilton, Ohio.

May 7—Johns Hopkins Supper Club and Public Meeting, Baltimore.

May 9—American Drug Manufacturers Association, White Sulphur Springs, W. Va.

May 14—Pharmacopceial Convention, Washington, D. C.

May 16—Welfare Fund, Milwaukee.

May 21—Nurses' Graduation, Mount Sinai Hospital, Chicago.

May 22—B'nai B'rith, Chicago.

May 23—Tenth District Medical Society, Hammond, Ind.

May 24—Nurses' Graduation, City Hospital, Indianapolis.

May 25—Prairie Club, Des Moines, Iowa.

May 27—Knife and Fork Club, Oklahoma City.

May 28—Knife and Fork Club, Fort Worth, Texas.

DR. EDWIN P. JORDAN:

May 24—Will-Grundy County Medical Society, Louis Joliet Hotel, Joliet, Ill.

DR. NATHAN B. VAN ETTEN:

May 4—Morrisania City Hospital, New York.

May 7—Medical Society of the State of New York, New York.

May 11—American Scientific Congress, Washington, D. C.

May 14—New Hampshire Medical Society, Concord.

May 22—Illinois State Medical Society, Peoria.

May 28—Association for the Advancement of Professional Pharmacy, New York.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—The Senate Committee on Education and Labor, April 23, unanimously approved a revised Wagner-George hospital construction and maintenance bill. The bill, it is understood, proposes a six year program and that total federal appropriations of \$63,000,000 will be authorized. S. 1461 has passed the Senate, proposing that retired enlisted men of the Army, Navy, Marine Corps and Coast Guard when hospitalized or domiciled in either an Army or Navy hospital or United States Naval or United States Soldiers' Home shall be extended treatment or domiciliary care without cost. S. 3607 has been reported to the Senate, proposing a federal appropriation of \$75,000 for the fiscal year ending June 30, 1941, and for the five succeeding fiscal years federal appropriations increased at the rate of \$10,000 for each year, for use by the Public Health Service in conducting researches, investigations, experiments and studies relating to the cause, diagnosis and treatment of dental diseases, and to foster similar research activities by other agencies.

Bills Introduced.—S. 3825, introduced by Senator McNary, Oregon, proposes to amend the Internal Revenue Code to impose a tax of \$20 per pound on antonin and its salts. S. 3838, introduced by Senator Walsh, Massachusetts, proposes to establish in the Department of Labor a Bureau for the Welfare of the Deaf. H. J. Res. 520, introduced by Representative Hennings, Missouri, proposes the issuance of a special postage stamp in honor of Florence Nightingale and the nursing profession. H. R. 9485, introduced, by request, by Representative McCormack, Massachusetts, would authorize the Administrator of Veterans' Affairs to furnish domiciliary and hospital care and medical treatment to World War veterans of the United States Merchant Marine. H. R. 9510, introduced by Representative Peterson, Florida, proposes to grant marine hospitalization benefits to persons engaged in sponge diving.

DISTRICT OF COLUMBIA

Changes in Status.—H. R. 7865 has passed the House, proposing to regulate the practice of dentistry in the District of Columbia. H. R. 8692 has passed the House, proposing to enact a new podiatry act for the District of Columbia. H. R. 9284 has passed the House, directing the Commission on Licensure to Practice the Healing Art in the District of Columbia to issue a license to practice the healing art to Dr. A. L. Ridings.

Bill Introduced.—H. R. 9525, introduced by Representative Kennedy, Maryland, proposes to reorganize the government of the District of Columbia. The bill provides among other things that, in selecting a health officer for the District, the commissioners may request the President of the United States to designate an officer from among the medical officers of the United States Army Medical Corps, the United States Navy Medical Corps or the United States Public Health Service Corps. The bill also proposes to abolish the office of coroner and to establish the office of medical examiner to function under the direction of a chief medical examiner, appointed by the commissioners, who must be a doctor of medicine and a skilled pathologist with not less than two years' actual experience as a pathologist. A new license department will be created, it is proposed, on which will be devolved the duties heretofore exercised by various boards, departments, officers, and commissions, including the Commission on Licensure to Practice the Healing Art. The commissioners of the District will be authorized to appoint the licensing and examining boards.

STATE MEDICAL LEGISLATION

Mississippi

Bills Passed.—H. 1046 passed the House, April 25, proposing to appropriate \$650,000 to be disbursed to approved hospitals caring for the indigent sick in counties in which no state supported charity hospital is operated. The bill proposes also to appropriate the following sums to the state charity hospitals indicated: South Mississippi \$67,500, Matty Hersee \$67,500, Jackson \$67,500, Vicksburg \$62,500 and Natchez \$52,500. H. 1052 passed the House, April 26, proposing to authorize a levy in the city of Laurel of a tax on all taxable property, not exceeding one-half mill, to help support and maintain the South Mississippi Charity Hospital.

Bills Introduced.—H. 961 proposes to appropriate \$25,000 "for the purpose of purchasing land, buildings, repairing, remodeling, constructing and equipping the North Mississippi Charity Hospital." H. 987 proposes to require state charity hospitals to provide at least ten beds to be used exclusively for maternity cases. H. 1053 proposes to authorize the board of supervisors of Jones County to levy a countywide tax on all taxable property, not exceeding one-half mill, for the purpose of helping to support and maintain the South Mississippi Charity Hospital.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Refresher Course on Chronic Diseases.—The University of California Medical School, San Francisco, will offer a refresher course for graduate physicians, June 3-6, on "Various Aspects of Chronic Diseases." The course will include a discussion of the problems of cancer, heart disease, arthritis, kidney disease, mental disease and tuberculosis. Additional information may be obtained from the dean's office.

Rockefeller Gift to Build Cyclotron.—The Rockefeller Foundation has given \$1,150,000 to the University of California, Berkeley, to construct a 4,900 ton cyclotron, according to the *New York Times*. The gift was made contingent on the university's success in raising \$250,000 and construction must be completed by June 30, 1944. According to the *Times*, the proposed machine will produce energies in excess of 100,000,000 volts, compared with the 33,000,000 volt apparatus with which Ernest O. Lawrence, Ph.D., director of the university's radiation laboratory, explored the field of atomic energy and won the 1939 Nobel Prize for physics. The present apparatus at the university has a 60 inch magnet and cost \$80,000, while the new machine will have a 184 inch magnet.

State Medical Meeting at Coronado.—The sixty-ninth annual session of the California Medical Association will be held at the Hotel Del Coronado, Coronado, May 6-9, under the presidency of Dr. Charles A. Dukes, Oakland. The address of welcome opening the first general meeting will be delivered by Dr. Joseph Weinberger, San Diego, president of the San Diego County Medical Society. Among the out of state speakers will be:

- Dr. Edward H. Rynearson, Rochester, Minn., Endocrinology: A Critical Appraisal.
- Dr. Isidor S. Ravdin, Philadelphia, Factors Involved in the Care of the Patient Seriously Ill with Liver Disease.
- Dr. Emery A. Rovenstine, New York, Treatment of Poisoning from Hypnotics.
- Dr. Winfred H. Bucemann, Portland, Ore., Seven Years of Operation of the Multnomah Medical Service Bureau.

The program includes symposiums on biliary tract disease, convulsive states, analgesia and anesthesia in obstetrics, eczema of infancy and early childhood, and plastic surgery in the field of industrial surgery. In addition, many papers will be presented by California physicians. The cancer commission of the California Medical Association will hold a pathologic and radiologic conference, the program including round table discussions of malignant and premalignant disease of the rectum and anus and of the large intestine. Other conferences will deal with pathologic conditions of the skin and of the heart. The annual conference of secretaries of component county medical societies will be held Sunday May 5.

COLORADO

Clinics at Grand Junction.—The Mesa County Medical Society conducted spring clinics in Grand Junction, April 13-14. Included among the speakers were:

- Dr. Constantine F. Kemper, Denver, Newer Procedures in the Diagnosis and Treatment of Ductless Gland Diseases.
- Dr. Casper F. Hegner, Denver, Indications for Surgicat Collapse in Pulmonary Tuberculosis.
- Dr. George Gitt Richards, Salt Lake City, Postoperative Tetany.
- Dr. Harold T. Low, Pueblo, Gastro-Intestinal Symptoms of Genito-Urinary Tract Pathology.
- Dr. Harold R. McKeen, Denver, Incidence of Perforated Peptic Ulcer in Industry.
- Dr. Rex L. Murphy, Denver, Present Status of Sinus Disease.

CONNECTICUT

State Medical Meeting at Hartford.—The one hundred and forty-eighth annual meeting of the Connecticut State Medical Society will be held at the Hotel Bond, Hartford, May 22, under the presidency of Dr. Joseph I. Linde, New Haven. Included among the out of state speakers will be:

- Dr. Lee E. Farr, New York, Indications for Therapeutic Use of Intravenous Amino Acids.
- Dr. Harold F. Bishop, Valhalla, N. Y., Survey of the Anesthesia Service at Grasstands Hospital, 1938 to 1940.
- Dr. Loudon Corsan Reid, New York, Anesthesia in Relation to Cardiac Disease.

- Dr. James C. White, Boston, Injection of Procaine and Alcohol in the Diagnosis and Treatment of Intractable Visceral Pain.
- Dr. Philip D. Wilson, New York, Modern Treatment of Low Back Pain and Sciatica.
- Dr. Athert D. Ruedemann, Cleveland, End Results of Eye Muscle Surgery.
- Dr. Frederick M. Law, New York, Difficulties in Interpretation of Nasal Accessory Roentgenograms.
- Dr. Isidore Friesner, New York, An Analysis of Fundus Changes in Sinus Thrombosis.
- Dr. Louis E. Phancuf, Boston, Manchester Operation in the Treatment of Uterine Prolapse.
- Dr. George E. Binkley, New York, Role of Radiation Therapy in Treatment of Rectal Cancer.
- Dr. Richard Schatzki, Boston, Roentgenologic Examination in Hemorrhage from the Upper Gastro-Intestinal Tract.

Dr. Haven Emerson, New York, will be the speaker at the annual dinner Wednesday evening. At a meeting of the Hezekiah Beardsley Pediatric Club, Dr. Paul D. White, Boston, will be a guest. The speakers will include Drs. Katherine G. Dodge, New York, on "Preventive Aspects of Heart Disease in Children," and Chris H. Neuswanger, Waterbury, "Congenital Urological Anomalies." Other guest speakers on the general program will include Drs. William S. McCann, Rochester, N. Y.; Foster S. Kellogg, Boston; Thomas Grier Miller and George P. Müller, Philadelphia.

FLORIDA

Personal.—Dr. Isaac W. Chandler, Avon Park, has been appointed a member of the state board of medical examiners. —Dr. Charles Lancaster Clay, Boston, has been appointed superintendent of the Jackson Memorial Hospital, Miami, to succeed Dr. Robert C. Woodward, who is retiring. —Dr. Carol T. Bowen, Miami, has been appointed in charge of the division of venereal disease control of the Duval County Health Unit.

Society News.—Dr. John T. Ellis, Dothan, Ala., addressed the Franklin-Gulf County Medical Society recently on "Fractures of the Spine." —At a recent meeting of the Washington-Holmes County Medical Society and members of the medical profession in northwestern Florida and Dothan, Ala., in Chiple, the speakers were Drs. Theron K. McFatter, Dothan, on "Sulfapyridine and Pneumonia"; John Samuel Turberville, Century, "Organized Medicine," and John A. Keyton, Dothan, "Ethics and Medicine." —The Duval County Medical Society was addressed, April 2, by Drs. Harry B. McEuen, Jacksonville, on "X-Ray Treatment of Cancer, Metastases and Recurrence," and Thomas H. Lipscomb, Jacksonville, "Advances in Diagnostic Roentgenology."

GEORGIA

District Meeting.—The spring meeting of the Fifth District Medical Society was held at the Academy of Medicine, Atlanta, March 29. Addresses were given by Drs. Charles E. Rushin, Atlanta, and William H. Myers, Savannah, presidents of the Fulton County Medical Society and the Medical Association of Georgia respectively. The speakers included Drs. Lloyd F. Craver, New York, on "Lymphomas" and Adrian Lambert, New York, "Surgery in Diseases of the Chest."

In Memory of Dr. Crawford Long.—The memory of Dr. Crawford W. Long, discoverer of ether anesthesia, was honored at a meeting in Jefferson, April 8, held in conjunction with the first day sale of the Dr. Crawford W. Long 2 cent "Famous Americans" postage stamp. The guest of honor was Mrs. Eugenia Long Harper, College Park, the only living child of Dr. Long. She is 85 years old. Participating in the program were Governor E. D. Rivers; Senator Richard B. Russell; Dr. William H. Myers, Savannah, president, Medical Association of Georgia; Dr. Frank K. Boland, Atlanta, president, Crawford W. Long Memorial Association; Harmon W. Caldwell, L.L.D., president, University of Georgia, Athens, and Harvey W. Cox, L.H.D., president of Emory University. Floats in a parade depicted the life of Dr. Long.

ILLINOIS

Society News.—Dr. Lorin D. Whittaker, Peoria, discussed "Certain Aspects of Thyroid Disease" before the Peoria Medical Society, April 16. —Dr. Manuel E. Lichtenstein, Chicago, addressed the McLean County Medical Society in Bloomington, April 9, on "The Basis for Therapy in Intestinal Obstruction." —Dr. Thomas Addis, San Francisco, addressed the Springfield Medical Club, April 23, on "Treatment of Glomerular Nephritis." —Dr. Joseph L. Baer, Chicago, discussed "Prolonged Labor" before the Knox County Medical Society, April 4.

Chicago

Anniversary Dinner.—The thirty-third anniversary of the Ravenswood Hospital will be observed at a dinner at the North Shore Country Club May 8. Two of the hospital's founders, Drs. George N. Bussey and George De Tarnowsky, will be guests of honor at the dinner. They are still active members of the staff. In the morning the obstetric and gynecologic section of the hospital will hold a special commemorative program. At this meeting Dr. Bussey, Dr. De Tarnowsky, Dr. Wallace F. Grosvenor and Dr. Clark A. Buswell will be guests.

Biological Photographic Association.—The Chicago chapter of the Biological Photographic Association was organized in January to further the study and improve the technique of photography related to biologic sciences, including the medical field. Those who are active and those who are merely interested in this type of photography may become members. Meetings are open to nonmembers also. Mr. William L. M. Martinsen, of the Municipal Tuberculosis Sanitarium, was elected president; Mr. Ralph P. Creer, of the Veterans Administration Facility, vice president; Mr. John A. Maurer, of Loyola University School of Medicine, secretary, and Miss Avis Gregersen, Northwestern University Medical School, treasurer. Mr. Reuel W. Bennett, of Billings Hospital, demonstrated photography of the eye, with special emphasis on color and stereoscopic photography of the retina. Miss Gregersen showed kodachrome slides of diseases of the skin. Mr. Howard Kirby, of the Eastman Kodak Company, spoke, March 19, on the spectral distribution of light, films and filters. Meetings of the association are held at 7:30 p. m. on the third Tuesday of every month at 310 South Michigan Boulevard, room 1111.

INDIANA

Fifty Years of Service.—Dr. Hugh A. Cowing, Muncie, was guest of honor at a luncheon given in recognition of his fifty years in the practice of medicine. Dr. Cowing graduated at the Miami Medical College, now known as the University of Cincinnati College of Medicine, in 1890. He has served as city and county health officer and as a member of the state board of health. He was one of the organizers of the Y. M. C. A. of Muncie, serving as president in 1881. He has since been a director and vice president and for the past three years president again.

Society News.—The Indianapolis Ophthalmological and Otolaryngological Society was addressed, April 14, by Dr. William L. Benedict, Rochester, Minn., on "Diseases of the Paranasal Sinuses and the Ear with Ocular Complications."—A joint meeting of the Indianapolis Medical Society and the Indiana Tuberculosis Association was addressed, April 16, by Dr. Harry E. Kleinschmidt, New York, on "Some Considerations in the Diagnosis of Tuberculosis." The medical society was addressed at a joint meeting with the Seventh District Medical Society, April 30, by Dr. Paul A. O'Leary, Rochester, Minn., on syphilis.—Dr. Albert M. Snell, Rochester, Minn., discussed "Vitamin K and Its Clinical Application" before the Fort Wayne Medical Society, April 16.

KANSAS

Osteopath Denied Federal Narcotic Registration.—In the opinion of the United States Circuit Court of Appeals, tenth circuit, an osteopath in Kansas has no right under his state license to use narcotic drugs and hence is not entitled to registration under the Harrison Narcotic Act (*Burke, Collector of Internal Revenue v. The Kansas State Osteopathic Association et al.*). Following a decision by the Supreme Court of Kansas that osteopaths could not lawfully use drugs as remedial aids, the United States Collector of Internal Revenue refused to register osteopaths under the Harrison Narcotic Act. The Kansas State Osteopathic Association then sued to enjoin the collector from thus refusing to register osteopathic licentiates and the United States district court issued the injunction. The Circuit Court of Appeals, however, was of the opinion that the laws of Kansas prohibited the use, sale or distribution of narcotic drugs for any purpose by an osteopath. When osteopaths were licensed to practice their profession, the court pointed out, their therapy, as indicated in statements by leaders of their profession, was designed to relieve pain and other illness by means of manipulation and without the use of drugs. It was on the strength of this claim that the legislature granted them the privilege of practicing the healing art. If, the court continued, osteopaths have now found that their therapy will not relieve pain and that they must use narcotics or other drugs to secure that end, that need should be addressed to the legislature rather than to the

courts. The court quoted liberally from osteopathic literature to show that in 1913, when the Kansas law was passed, the "outstanding members of the osteopathic profession understood, believed and taught" that osteopathy was a drugless method of healing. Furthermore, the court thought, the fact that in an osteopathic college the broad principles of medicine and surgery are investigated and considered, for the purpose of giving the student body a knowledge of what those who practice medicine and surgery believe, would not be sufficient to conclude that those licensed to practice osteopathy would have the right to practice medicine and surgery.

MASSACHUSETTS

Doctors' Symphony Orchestra.—The first concert of the Boston Doctors' Symphony Orchestra will be held Sunday evening, May 5, at Jordan Hall, Boston. Alexander Thiede is conductor of the orchestra. Tickets will be \$1 and the proceeds will be given to a medical charity.

District Meetings.—The Suffolk District Medical Society was recently addressed in Boston by Drs. Roy F. Feemster on "Acute Infectious Diarrhea" and Maurice B. Strauss, "Maintenance of Adequate Nutrition in Chronic Diarrhea."—Dr. Edward L. Young discussed "Diseases of the Colon from the Medical and Surgical Standpoints" before the Norfolk District Medical Society recently in Boston.—The Worcester District Medical Society was addressed in Worcester, April 10, by Drs. Gardner N. Cobb on "Unusual Pellagra"; Ernest L. Hunt, "My Boy, the Public Schools, and the Common Cold"; Theodore B. Massell, "Treatment of Varicose and Phlebotic Ulcers"; Joseph Millin, "Pelvic Tuberculosis in the Female," and Charles S. Whelan, "Argemone Tumors."

MICHIGAN

New Disease Regulations.—The state department of health has announced several changes in the list of reportable diseases. Acute rheumatic fever and venereal lymphogranuloma have been added to the list. Streptococcal sore throat and trench mouth are made reportable only if they are acute, and a fourteen day quarantine has been added for barracks or dormitories where meningococcal meningitis is found. Under the revised regulations, children with scabies must be kept out of school even though under treatment, and the silver nitrate solution used in the eyes of newborn babies will be reduced in strength to 1 per cent.

Quarantine on Dogs.—A quarantine has been made effective in forty-seven counties of the Lower Peninsula south of the Manistee-Iosco county line as a part of the campaign against rabies recently inaugurated by the state department of health and the department of agriculture. Dogs which are captured when running at large are required to be kept for seventy-two hours and then destroyed except under certain conditions. Dogs may be destroyed sooner by any incorporated humane society or on order of a municipal veterinarian or health officer. If they are not destroyed they must be impounded continuously for three months. Owners wishing to remove their dogs from the quarantine area to another part of the state must first obtain a permit from the local sheriff. Dogs brought into the quarantine area will be registered with the sheriff within forty-eight hours of arrival. Special certificates of health approved by the state veterinarian at Lansing must be obtained for dogs moved from the area to another state. The ban will be in effect at least six months dating from April 1.

NEW HAMPSHIRE

State Medical Meeting.—The one hundred and forty-ninth annual meeting of the New Hampshire Medical Society will be held at the Hotel Carpenter, Manchester, May 14-15, under the presidency of Dr. James B. Woodman, Franklin. The guest speakers will be:

Dr. Elliott P. Joslin, Boston, Diabetic Hazards and How to Meet Them.
Dr. Priscilla White, Boston, Diabetes in Children and Adolescents: Problems and Management; Pregnancy in the Diabetic.
Dr. Alexander Marble, Boston, Diet and Insulin.
Dr. Henry W. Cave, New York, Medical and Surgical Management of Ulcerative Colitis.
Dr. Cornelius P. Rhoads, New York, Vitamins.
Dr. John F. Erdmann, New York, Diverticulitis.

Dr. Nathan B. Van Etten, New York, President-Elect of the American Medical Association, will speak on "The Education of the Intern," with Dr. Nathan Smith, New York, as collaborator, and again at the society banquet on "An American Health Program." Fifty year membership medals will be presented to Drs. Arthur K. Day, Concord; Frank E. Kirtledge, Nashua, and George H. Gray, Hyannis, Mass.

NEW YORK

State Medical Women's Meeting.—The thirty-fourth annual meeting of the Women's Medical Society of New York State will be held May 6 at the Waldorf-Astoria, New York, under the presidency of Dr. Alice Stone Woolley, Poughkeepsie. The speakers will be:

- Dr. Josephine H. Kenyon, New York, The Stimulation of Height in Short Children.
- Dr. Connie M. Guion, New York, Treatment of Heart Failure.
- Dr. Florence E. Sammis, New York, Diagnosis and Treatment of Bronchial Asthma.
- Dr. Marian Tyndall, New York, Diagnosis and Treatment of Chronic Arthritis.

New York City

Annual Concert of Doctors' Orchestra.—The Doctors' Orchestral Society of New York will give its second annual concert at Town Hall, May 10, under its regular conductor, Ignatz Waghalter. The program will include works by Tchaikowsky, Wagner, Goldmark and Smetana. Dr. Israel Leopold Glushak will be the soloist, singing arias from "Lohengrin" and "Die Meistersinger." Part of the proceeds will be donated to the New York Physicians' Home. On May 7 the orchestra will play at the annual banquet of the Medical Society of the State of New York at the Waldorf-Astoria. The Doctors' Orchestra has a membership of seventy physicians and dentists, rehearsing every Thursday evening at the National Hospital for Speech Disorders. Dr. Glushak is president of the society, Dr. William S. Thomas, vice president, and Dr. Harold S. Belcher, secretary.

NORTH DAKOTA

State Medical Meeting at Minot.—The fifty-third annual meeting of the North Dakota State Medical Association will be held in Minot May 6-8, under the presidency of Dr. Harry A. Brandes, Bismarck. The meeting will open with a symposium on essential hypertension presented by Drs. Walter E. Camp, Minneapolis; Charles N. Hensel, St. Paul, and Thomas D. Allen, Chicago. Other speakers will be:

- Dr. Roscoe C. Webb, Minneapolis, *Hernia*.
- Dr. Paul A. O'Leary, Rochester, Minn., *The Eczemas*.
- Dr. Chester A. Stewart, Minneapolis, *Convulsive Disorders in Children*.
- Dr. Charles W. Schoregge, Bismarck, *Simple Mastectomy versus Radical Mastectomy in Carcinoma*.
- Dr. John L. McKelvey, Minneapolis, *Vascular Disease as Related to the Pregnancy Toxemias*.
- Dr. Monte C. Piper, Rochester, Minn., *Chronic Infections of External Genitalia*.
- Dr. Frederic E. B. Foley, St. Paul, *The Choice of Operation for Bladder Neck Obstruction*.
- Dr. Cedric Northrop, San Haven, *The Role of the Private Practitioner in Detecting Pulmonary Tuberculosis*.
- Dr. Gordon S. Fahrni, Winnipeg, Man., Canada, *Thyroid Disease*.
- Dr. Alfred W. Adson, Rochester, Minn., *Early Skull Fractures*.

Mr. John M. Pratt, executive director of the National Physicians' Committee, Chicago, will describe the work of the committee.

OHIO

State Medical Meeting at Cincinnati.—The ninety-fourth annual meeting of the Ohio State Medical Association will be held in Cincinnati, May 14-16, at the Netherland-Plaza Hotel under the presidency of Dr. Parke G. Smith, Cincinnati. One general session will be devoted to a conference on medical service plans with an address by Dr. Jason A. Hannah, Toronto, Canada, managing director of Associated Medical Services, Inc., Toronto. Another will be on medical programs for recipients of public assistance with an address by the Hon. Charles L. Sherwood, state director of public welfare, Columbus. Scientific speakers at general sessions will be:

- Dr. Richard B. Cattell, Boston, *Management of Cancer of the Large Intestine*.
- Dr. William Osler Abbott, Philadelphia, *The Role of Small Intestinal Intubation in the Treatment of Intestinal Obstruction and in the Diagnosis of Obstructing Lesions*.
- Dr. Clarence Guy Lane, Boston, *Criteria for the Diagnosis of Occupational Skin Disease*.
- Dr. Ralph R. Mellon, Pittsburgh, *Clinical and Experimental Aspects of the Mode of Action of Sulfanilamide-Sulfapyridine Compounds*.
- Dr. Ralph M. Waters, Madison, Wis., *Respiration and the Treatment of Pain*.
- Dr. Elmer J. Wenaas, Youngstown, *Affections of the Eye Secondary to General Diseases*.
- Dr. Raymond A. Ramsey, Columbus, *Treatment of Disorders of the Thyroid*.
- Dr. Marion A. Blankenhorn, Cincinnati, *Deficiency Diseases Seen in Office Practice*.
- Dr. Sidney E. Wolpaw, Cleveland, *Diagnosis of Early Pulmonary Tuberculosis*.

The section on eye, ear, nose and throat will have as its guest Dr. Thomas C. Galloway, Evanston, Ill., who will dis-

cuss "Laryngeal Emergencies (Especially Laryngotracheobronchitis)." There will be round table conferences two afternoons and a public health luncheon Wednesday. At the annual banquet Thursday evening the principal address will be given by Robert A. Taft, Cincinnati, U. S. Senator from Ohio and candidate for the Republican nomination for President.

OKLAHOMA

State Medical Meeting at Tulsa.—The forty-eighth annual session of the Oklahoma State Medical Association will be held at the Mayo Hotel, Tulsa, May 6-8, under the presidency of Dr. Walter A. Howard, Chelsea. There will be two general scientific sessions with the following guest speakers:

- Dr. Horton R. Casparis, Nashville, Tenn., *Tuberculosis and the General Practitioner; Medical Aspects of Child Behavior*.
- Dr. Curtice Rosser, Dallas, Texas, *Diagnostic Points in Rectal Cancer; Management of Minor Anal Pathology*.
- Dr. Edward H. Skinner, Kansas City, Mo., *Management of the Accessible Cancer of the Uterine Cervix by Radium Therapy; Simplified Radiation Therapy for Cancer of the Skin and Lip; The National Physicians' Committee for Extension of Medical Service*.
- Dr. Alphonse McMahon, St. Louis, *Effect of Aminophylline on the Electrocardiogram; Group Hospital Insurance*.

In addition, the guest speakers will address section meetings. Dr. McMahon, who is Vice President of the American Medical Association, will be the speaker at an evening general meeting on "The Medical Profession, Its Aims and Responsibilities." At this meeting Dr. Henry H. Turner, Oklahoma City, will be installed as president and will deliver his address. The Oklahoma Pediatric Society will hold its annual meeting May 6 with Dr. Casparis as a guest speaker on "Recent Advances in Chemotherapy" and "Recent Attitudes Toward Thymic Conditions," and Dr. James G. Hughes, Memphis, Tenn., on "The New Tuberculin Patch Test." There will also be a public health meeting Monday afternoon and the golf tournament will be played at Oakhurst Country Club. The first annual meeting of secretaries of county medical societies will be held Wednesday noon at a luncheon at the University Club.

OREGON

Society News.—A program on medical economics was presented at a meeting of the Multnomah County Medical Society, Portland, April 3, by Drs. John H. Fitzgibbon, George E. Henton and William H. Bueermann and Mr. John J. Coughlin, legal counsel, Oregon State Medical Society.—Dr. Frank R. Mount, Portland, addressed the Central Willamette Medical Society, Eugene, April 4, on "Nonrheumatic Endocarditis."

Lectures on Gastroscopy.—Dr. Rudolf Schindler, associate professor of medicine, School of Medicine of the Division of Biological Sciences, University of Chicago, delivered three lectures in Portland, April 25-27, under the auspices of the Portland Academy of Medicine. His subjects were: "Development and Clinical Importance of Gastroscopy"; "Chronic Gastritis" and "Early Diagnosis and Prognosis of Gastric Carcinoma."

PENNSYLVANIA

Personal.—Dr. Newton W. Hershner, Mechanicsburg, has been appointed medical director of Cumberland County, succeeding Dr. Edward S. Berry, Shippensburg.

Society News.—Dr. Henry H. Ritter, New York, addressed the Lehigh County Medical Society, Allentown, April 9, on "The Commoner Problems in the Treatment of Trauma."—Dr. Harry M. Little, Pittsburgh, addressed the Lawrence County Medical Society, New Castle, April 7, on "The Problems of Child Guidance."

TENNESSEE

State Medical Election.—Dr. Leonard W. Edwards, Nashville, was elected president of the Tennessee State Medical Association at the annual meeting in Chattanooga, April 9-11. Vice presidents elected were Drs. Jesse Paul Baird, Dyersburg; Joe B. Wright, Lynnville, and Abraham J. Guinn, Ducktown, and Dr. Harrison H. Shoulders, Nashville, was reelected secretary. The 1941 meeting will be held in Nashville.

University News.—Dr. Russell L. Cecil, New York, delivered the commencement address at the University of Tennessee College of Medicine, Memphis, March 17, on "The Physician in the Changing World."—Dr. Edward D. Churchill, John Homans professor of surgery, Harvard Medical School, Boston, delivered the tenth annual lecture sponsored by Phi Beta Pi at Vanderbilt University School of Medicine, Nashville, March 18, on "Surgery of the Chest."

TEXAS

State Medical Meeting at Dallas.—The seventy-fourth annual meeting of the Texas State Medical Association will be held at Dallas, May 14-16, at the Hotel Adolphus under the presidency of Dr. Leopold H. Reeves, Fort Worth. At the opening general meeting Dr. Reeves will make his official address on "The Philosophy of Medicine" and Dr. Olin West, Secretary of the American Medical Association, Chicago, will speak on "The American Medical Association and the Public." The guest speakers on the scientific program of the general meetings will be:

- Dr. Frank J. Heck, Rochester, Minn., Iron Requirements in Childhood and Adult Life.
- Dr. Roy R. Kracke, Emory University, Ga., Effect of Sulfanilamide and Related Compounds on the Blood.
- Dr. Alan Brown, Toronto, Ont., A Consideration of Some Common Pediatric Problems.
- Dr. Joseph C. Beck, Chicago, Review of Sulfanilamide as an Aid to the Treatment of Eye, Ear, Nose and Throat Conditions.
- Dr. Claude S. Beck, Cleveland, Extrinsic Lesions of the Heart.
- Dr. Wilson C. Williams, Nashville, Tenn., Public Health and the Practice of Medicine.
- Dr. Holland M. Tigert, Nashville, Postmenopausal Bleeding.
- Dr. Arthur C. Christie, Washington, D. C., Diagnosis and Management of Cancer of the Breast.
- Dr. Frank H. Lahey, Boston, Advances in the Management of Thyroid Diseases.

These guests will also address clinical luncheons and section meetings. Two symposiums are announced on the program. One will be on sulfanilamide therapy with the following speakers: Drs. Bailey R. Collins and William L. Powers, Wichita Falls; Walter G. Reddick, Dallas; William S. Horn, Fort Worth, and Charles M. Simpson, Temple. The other is on hematology, to be discussed by Drs. Roy L. Grogan, Fort Worth; William Boyd Reading and Meyer Bodansky, Galveston; William N. Powell, Temple; William D. Tigert, Dallas; Alvis E. Greer and Moise D. Levy, Houston. Related organizations that will meet during the week are: Texas Railway and Traumatic Surgical Association, Texas Allergy Association, Texas Neurological Society, Texas Society of Gastro-Enterologists and Proctologists, Texas Association of Medical Anesthetists, Texas Dermatological Society, Texas State Heart Association and the Conference of County and City Health Officers. The Woman's Auxiliary to the state medical association will hold its annual meeting at the Baker Hotel under the presidency of Mrs. Seaborn H. Watson, Waxahachie, with Mrs. Rollo K. Packard, Chicago, president of the national auxiliary, as a guest.

GENERAL

Meeting of Drug Manufacturers.—At the twenty-ninth annual meeting of the American Drug Manufacturers Association at the Greenbrier, White Sulphur Springs, W. Va., May 6-9, the speakers will include Drs. Morris Fishbein, Chicago, Editor of *THE JOURNAL*, on "American Medicine and the National Government"; Sara E. Branham, U. S. Public Health Service, Washington, D. C., "Antimeningococcal Serum, Its Present Status and Future Possibilities" and Perrin H. Long, Baltimore, "Comparative Clinical Studies on the Value of Sulfanilamide, Sulfapyridine and Sulfathiazole."

Pharmacopoeial Convention Meets in Washington.—The thirtieth decennial meeting of the United States Pharmacopoeial Convention will be held at the Willard Hotel, Washington, D. C., May 14-15. It may continue through Thursday, May 16, if necessary, according to the program announcement. After the opening ceremony, foreign delegates will be introduced and the president, Dr. Walter A. Bastedo, New York, will give his official address. This will be followed by a "Review of Pharmacopoeial Affiliations," with the following speakers:

- Dr. Morris Fishbein, Chicago, Editor of *THE JOURNAL*, The Relation of the Pharmacopoeia to the Medical Profession.
- Evander F. Kelly, Phar.D., Washington, secretary of the American Pharmaceutical Association, The Relation of the Pharmacopoeia to the Pharmaceutical Profession.
- Mr. Walter G. Campbell, chief, Food and Drug Administration, Washington, The Relation of the Pharmacopoeia to the Food and Drug Administration.

At this session reports will be presented by the chairman and secretary of the board of trustees, the treasurer of the convention and the chairman of the committee of revision; proposed amendments to the constitution and by-laws will be considered and the nominating committee will be named by accredited member organizations. On the second day, the secretary of the pharmacopoeial convention will make his report and resolutions or contributions in writing by members of the convention will be received. The nominating committee will

then report, officers will be elected and installed for 1940-1950 for the convention, the board of trustees and the general committee of revision. Then will come a consideration of general principles to guide the U. S. P. revision, followed by introduction of general and new business.

On Monday, May 13, there will be a series of conferences on revision with respect to the following subjects: botany and pharmacognosy; extracts, fluidextracts, tinctures, waters, solutions, spirits, syrups and elixirs; inorganic and organic chemicals; statistical methods as applied to biological assays; volatile oils; biologic assays; cerates and ointments; hormones; proximate assays; vitamins; U. S. P. scope, therapeutics, nomenclature, and so on; preservation and packaging of pharmacopoeial products.

FOREIGN

Dr. Whitby Honored.—The Royal College of Surgeons of England has awarded the John Hunter Medal and Triennial Prize to Dr. Lionel Ernest Howard Whitby, bacteriologist for Middlesex Hospital, London, for his research in bacteriology "with special reference to the sulfonamide compounds." Dr. Whitby, who is 45 years old and a graduate of Cambridge University, is the author of textbooks on "The Laboratory in Surgical Practice" (with E. C. Dodds); "Medical Bacteriology" and "Disorders of the Blood," as well as a "Nurses' Handbook of Hygiene," and numerous contributions to the periodical literature.

Malaria in Yunnan, China.—Malignant malaria is epidemic in the province of Yunnan, China, according to a dispatch to the *New York Times* recently. Dr. Henry S. Houghton, Peiping Union Medical College, Peiping, Dr. Marshall C. Balfour, of the Rockefeller Foundation headquarters in Shanghai and John Leighton Stuart, D.D., president of Yenching University, went to Yunnan to join U. S. Public Health Service officers who went to China in November 1939 under the auspices of the Rockefeller Foundation to investigate reported epidemics. According to the *Times* dispatch, Bruce Mayne, Dr.P.H., one of the latter group, found a hitherto unknown type of mosquito that was infesting the Burma road, but he became ill in the midst of his investigations and had to return home. Other members of the earlier mission were Drs. Louis L. Williams Jr. and Hiram J. Bush (*THE JOURNAL*, Nov. 11, 1939).

CORRECTION

Dr. Emerson Not a Member of Health Council.—Dr. Haven Emerson, New York, writes that he is no longer a member of the National Advisory Health Council of the U. S. Public Health Service, a position he held some years ago. That Dr. Emerson is a member was noted in a news item in *THE JOURNAL*, April 20, page 1565.

Government Services

Announcement of Wellcome Medal

The Association of Military Surgeons of the United States announces the annual competition for the Wellcome Medal and prize of \$500, established by the late Sir Henry Wellcome for research on subjects helpful to the objects of the association. The topic chosen for this year is "Medical and Sanitary Care of the Civilian Population Necessitated by Attacks from Hostile Aircraft." Five copies of the essay must be in the office of the association in Washington, D. C., by August 20. The medal will be awarded at the annual meeting in Cleveland, October 10-12.

Dr. Sayers in Charge of Bureau of Mines

Dr. Royd R. Sayers, senior surgeon, U. S. Public Health Service, Washington, D. C., has been detailed by the President to be acting director of the Bureau of Mines, U. S. Department of Interior, according to the *New York Times*. Dr. Sayers graduated at the University of Buffalo School of Medicine, Buffalo, in 1914, and has been a member of the public health service since that time. He was chief surgeon and chief of the health and safety branch in the bureau of mines from 1917 to 1932, when he was placed in charge of the office of industrial hygiene and sanitation of the public health service.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 30, 1940.

The Food Situation

In spite of war activities on a gigantic scale, the food situation remains excellent. Only four foods have been rationed and the alternatives are so many that there is no hardship. Moreover, the allowance of butter has been doubled, increasing it to half a pound weekly per person, which is about normal consumption. Food prices have increased by only 16 per cent, which is but a small rise for a great war. In the previous one they had risen 84 per cent by the fourth year. Mr. Alan Tindal Lennox-Boyd, parliamentary secretary to the Ministry of Food, states that our rationing scheme has developed into a flexible machinery which would enable the country to face a long and grim war with complete confidence. Rationing was introduced early in this war so that the longest purses might not get the greatest advantage and in order to keep prices down. Moreover, to this end the government is subsidizing the production of essentials, such as flour, meat and milk, to the extent of \$4,500,000 a week. This is not done because of any scarcity but to cover the increased costs of production, transportation and distribution. The stocks of foodstuffs in this country are far greater than when the war broke out. Yet in the ceaseless output of fables for propaganda we are told that "food conditions in England are far worse than in Germany." This at a time when the attempt at blockade has quite failed and the Allied command of the sea has reduced the enemy to indiscriminate mine laying, more injurious to neutrals than to us! Normally we import a large part of our food supply and that, thanks to the success of the convoy system, comes through unhindered. Any restriction is due to the large amount of tonnage that has to carry munitions of war. But even serious restriction would not cause want, as we could produce at home much more food and indeed this is now being done, not because of difficulty of importing it but to spare ship tonnage. As one of the great exporters of manufactures, we normally import much food in return for them, and so we obtain food at a lower cost than it could be produced at home.

Treatment of Cerebrospinal Fever

A memorandum issued by the Ministry of Health points out that the introduction of sulfonamide derivatives has revolutionized the treatment of cerebrospinal fever. Meningococci appear to be equally susceptible to sulfanilamide and sulfapyridine, but sulfapyridine has the important advantage that it is not only as effective in the treatment of meningococcal and streptococcal infections as is sulfanilamide but is unique in its action on pneumococcal infections. This is a great advantage, as at the bedside the physician can rarely make a more precise diagnosis than that the patient is suffering from purulent meningitis. The two essentials of treatment are early administration and adequate dosage. As soon as a clinical diagnosis is made, chemotherapy should be begun without awaiting bacteriologic confirmation. It should be remembered that deepening coma may quickly render administration of fluids difficult, and these should be given plentifully. The aim should be to maintain in the cerebrospinal fluid a concentration of the drug equal to 5 mg. per hundred cubic centimeters for three days and a diminishing concentration for a further five or six days. Sulfapyridine should be given every four hours night and day during the first few days. The first two doses may be a maximum of 2 Gm. each for adults. Thereafter the four hourly doses should not exceed 1.5 Gm. each, or a total of

9 Gm. in the twenty-four hours. This dosage should extend over two and one-half to three days and the dose should then be gradually reduced over the next four to six days. This scheme will generally ensure that the drug is administered for some days after disappearance of the clinical signs and so prevent recurrence. The drug treatment should be completed in from seven to nine days in order to avoid the more dangerous toxic effects. But the administration should not be interrupted on account of minor toxic effects, such as cyanosis, nausea, vomiting or mental confusion. The oral route is to be preferred. If the dose is vomited, it should be repeated suspended in mucilage of tragacanth. If vomiting is repeated, it is a good plan to change from sulfapyridine to sulfanilamide. Alternatively, soluble sulfapyridine may be given as a deep intramuscular injection. The dose for infants and young children is proportionately higher than for adults. Infants easily tolerate 3 Gm. of sulfapyridine daily for the first three days. For adults about 4 pints (2 liters) of fluid daily is desirable to avoid the danger of hematuria from deposit of crystals of the acetyl derivative of the drug.

Toxic effects of the drugs are usually of a minor nature. With sulfanilamide on the scale of dosage mentioned, cyanosis constantly appears within twenty-four hours and remains until the dosage is reduced. It is due in most cases to methemoglobin and occasionally to sulfhemoglobin. Except in such conditions as severe anemia or dyspnea from concurrent respiratory disease, cyanosis, unless extreme, is not necessarily an indication for reducing the dosage. Other toxic effects of sulfanilamide are drowsiness, disorientation, mental confusion, occasionally hallucinations, and rarely papular rashes. With sulfapyridine cyanosis is much less marked but nausea, vomiting, malaise and general depression may be troublesome. Transient hematuria has been noted. In these conditions the drug should be changed to sulfanilamide in similar dosage. If hematuria persists, the drug may be reduced or stopped for from twelve to twenty-four hours. At the same time administration of fluids should be increased and the urine kept alkaline by administration of citrate. The danger of granulocytopenia seems more remote than in some other infectious diseases, such as puerperal fever and pneumonia. It is, however, wise to do a leukocyte count after the third day and repeat it in a few days. In hospitals, analyses to determine the drug content of the body fluids should be made so as to exercise an accurate control of dosage in relation to the condition of the patient. After an initial lumbar puncture for diagnosis, further punctures should not be done except to relieve pressure symptoms (intense headache) and on alternate days to verify the efficacy of chemotherapy.

Sir Patrick Laidlaw

The death at the age of 58 of Sir Patrick Laidlaw, F.R.S., head of the Department of Experimental Pathology and deputy director of the National Institute of Experimental Research, has removed a great investigator. He was working in his laboratory within a few hours of his sudden death from coronary thrombosis. He never had robust health and suffered from an attack of poliomyelitis in youth. The son of a physician, he adopted his father's profession and was educated at Cambridge and Guy's Hospital, where he became demonstrator of physiology. He joined the staff of the Wellcome Physiological Laboratories and published many pharmacologic papers, principally on the amines. In 1914 he returned to Guy's Hospital as lecturer in pathology, where he devised methods for the anaerobic cultivation of bacteria. In 1922 he joined the staff of the National Institute for Medical Research, where he did his pioneer work on virus infections, which Dale describes as his most important contribution to the advancement of knowledge. His work, with Dunkin, on dog distemper is a classic for which the Royal Society awarded him a royal medal. Later, with Andrews and Wilson Smith, he discovered

that a transmissible virus is the primary infective agent in human influenza. From this have grown investigations still in progress all over the world. He did much other work, all of the first importance. The first detailed studies on histamine in collaboration with Dale are described by the latter as "his work as much as mine." With Dobell he cultivated the parasitic amebas and investigated the effect of drugs on them. With H. W. Dudley he worked on the specific carbohydrate haptene of tubercle bacilli. Like many great men, he was most modest.

PARIS

(From Our Regular Correspondent)

March 27, 1940.

Cardiac Infarcts

At the latest meeting of the Société de cardiologie, several papers were read on the relations between infarcts of the myocardium and coronaritis, a question on which great divergence of views prevailed. Donzelot and Meyer Heine discussed apoplexy and the electrocardiographic indications of myocardial infarcts without coronary obliteration. At last December's meeting Laubry and Lenègre discussed fifty-seven cases of myocarditis, carefully followed during life and examined after death, in which arteriosclerosis simultaneously affected the aorta and the coronaries. Coronary lesions were nearly always bilateral and diffuse and did not always end in the obliteration of the vessel; cardiac lesions affected the three tunics, the myocardium alone being affected in thirty-two cases. Often several, either old or recurrent, infarcts were observed. They were localized, diffuse or atypical. Side by side with the classic hemorrhagic, necrotic or fibrous aspects, apoplexies were found in which the blood or serum was involved. There exists, therefore, among clinically similar cases a large variety of lesions which cannot always be precisely classified. The most striking feature is the preference for the left ventricle and the myocardiac zones situated at the extremity of coronary arborizations. Angina was observed in about half of the cases. Cardiac insufficiency was frequent. In thirty-two cases of infarct, coronary thrombosis was found seven times, limited stenosis eleven times, purely sclerous lesions five times and no coronary lesions twice. Infarcts are therefore not necessarily conditioned by ischemias. The most serious and extensive forms of coronary insufficiency are not of necessity accompanied by infarcts. Other factors productive of ischemia need to be conceded, such as reflex vasomotor disorders of a coronary, aortic or pulmonary nature.

Tuberculous Reinfections

In a recent paper G. Canetti set forth the results of his studies of tuberculous infections, pursued at the Hôpital Cochin and in the tuberculosis research laboratory of the Pasteur Institute. These results are based on numerous observations, especially on 100 carefully analyzed necropsies. Canetti thinks that lesions constantly found in the necropsies of the aged are not altogether caused by "primary pneumoganglionic complexes" but by other abortive or latent onsets that occur throughout life. To call these onsets reinfections implies that they are infections springing from areas that have become sterile. This is not always the case. It would be better to call them neo-infections. "Slate colored" pneumonias result from functional disorders involving insufficiency of the lymphatic circulation due to a weak respiratory expansion. Neo-infections occur especially in childhood and are generally apical. The general opinion that they are endogenous in their nature is quite conceivable if they spring from primary complexes that have not become sterile. Such are found in only 20 per cent of the cases. The remaining infections are exogenous, conditioned by intensity of the infection and the individual's power of resistance. There is no constancy in this resistance nor any continuity in the protection it offers.

Neuro-Ophthalmology

E. Velter, professor-elect of ophthalmology at the Faculty of Medicine of Paris, discussed in his opening lecture the relatively new branch of neuro-ophthalmology. Its field is the analytic study of the clinical relations between neural and ocular disorders. It implies knowledge of the embryologic, anatomic and physiologic relations of the functions of the eye and those of the central nervous system. Ophthalmology has also assumed an important place in social medicine such as supervision of the eyesight of school children and of workers of all kinds, of industrial accidents, of trachoma and of the prevention of blindness. Ophthalmology is emerging from its former confines reserved to the specialist and is entering the field of general pathology. Instruction must therefore be based on new and enlarged foundations and become accessible to all. Velter also pointed out that the present war brought new problems chiefly of a surgical nature pertaining to the excision or prompt cleansing of the wound, to the preservation of what can be saved and to suture repair. The science of treating ocular wounds grew out of the experiences of the World War. After the war, the damage done to the eyesight of the individual will have to be determined and the occupational rehabilitation undertaken. The ophthalmologist will have a wide field of action.

COPENHAGEN

(From Our Regular Correspondent)

March 17, 1940.

The Medical Supervision of Hospital Nurses

A remarkable change is to be noted in the conditions of hospital service for nurses. And it is perhaps only natural that older generations of nurses should feel a trifle resentful over the care and tenderness now shown to their younger sisters. One of the most important reforms in the nursing world concerns the very discriminating selection, from a medical point of view, of all candidates for nursing work. Before they are accepted, their family histories are scrutinized and they themselves are subjected to a searching clinical examination. The blood is examined by the sedimentation test, an electrocardiographic record is taken in doubtful cases, and in every case an x-ray examination of the chest is undertaken. By this combing out process about 5 per cent of the applicants for training as nurses are rejected, although many of them produce certificates from private medical practitioners who have vouched for the perfection of their health. Those candidates who survive the first series of tests have to undergo a new medical examination every half year, and on every such occasion the opportunity is taken to correct minor disabilities and ailments such as constipation, dysmenorrhea, varicose veins and deformities of the feet.

Dr. Hans Heckscher, who since May 1933 has kept more than a thousand hospital nurses under close medical supervision, testing them with tuberculin from time to time, has come to the conclusion that the nurse who is tuberculin negative at the beginning of her career is not so peculiarly liable to develop tuberculosis as the Norwegians Dr. Scheel and Dr. Heimbeck would have us believe. In fact, he has found that a nurse who was originally tuberculin positive is just as likely to develop tuberculosis as her originally tuberculin negative sister. Incidentally he expresses a quite favorable opinion of the Pirquet test, which most Danish doctors, influenced by the State Serum Institute in Copenhagen, are inclined to despise, having been taught that the Mantoux reaction is so much more delicate and accurate. So it is. But, as Dr. Heckscher remarks, the allergy which is revealed by the Mantoux test and missed by the Pirquet test is not a matter of any great importance.

Treatment of a Mentally Defective Child by a Chiropractor

A recent controversy which began between a chiropractor and a medical practitioner, and which ended in a law suit, has given the Danish public an insight into the scope of the therapeutic claims of chiropractors. In this particular case, chiropractor Andreassen undertook to treat a child suffering from chorea. The child had been admitted to the Ribe Institute for Mental Defectives and had been taken out of it on the parents' request. It was at this stage that Andreassen undertook to give chiropractic treatment for the child's affliction. The family doctor, Dr. Ovesen, dissented from this treatment, finding expression for his dissent in words to which the chiropractor took exception. These words, alleged to be defamatory, were addressed in part to the parents of the child, in part to the chiropractor himself. The sentence which the chiropractor claimed to be slanderous was that "chiropractic treatment of mental deficiency is a swindle and humbug." The upshot of the prosecution for slander in this case was the acquittal of the defendant, the complainant having to pay costs to the tune of 200 kroner. The court found that Dr. Ovesen must be considered justified in defining the chiropractor's treatment of the child in the aforementioned terms, considering that the chiropractor knew that the child had come under treatment after having been taken by the parents out of an institute for the mentally defective. The court also found that Dr. Ovesen was justified as the family doctor in advising against a treatment which, in the opinion of the medical authorities, must be considered as quite futile. A circumstance militating against the claimant was the further fact that the child had been deprived of proper care and education in order to undergo the chiropractor's treatment.

The Late Prof. Viggo Christiansen

Professor Christiansen, who was born on Dec. 9, 1867, and who died on Nov. 3, 1939, was the first occupant of the chair of neurology at the university of Copenhagen. He was a combative pioneer at a stage in the history of medicine when neurology and psychiatry were confused with each other and physicians looked askance at neurology as an independent discipline. Though Christiansen was a titular professor from 1911 onward, it was not until 1935 that he became an ordinary professor in the full academic sense and in a well defined sphere.

BUENOS AIRES

(From Our Regular Correspondent)

March 22, 1940.

Control of Diphtheria

Compulsory vaccination is regarded as the only solution of the diphtheria problem in Argentina, as pointed out by Dr. R. Cibils Aguirre in the *Revista de medicina y ciencias*. In the noncompulsory campaigns against diphtheria by the national educational council only 133,000 children were inoculated during the last eight years out of 300,000. Several bills, however, aiming at the improvement of the situation are awaiting legislative action. To complete within the shortest time possible reliable diagnostic tests of diphtheria bacilli, a center has been created in the bacteriologic institute connected with the federal department of public health. A fee of 15 Argentine pesos (\$4.50) is charged, except in the case of official analyses and those of the indigent. Serums may also be procured there.

In Bolivia no prophylaxis has been established and epidemics of diphtheria occur. In a bulletin of the national health department, Dr. Ossio advises that anatoxin therapy according to Ramon's method be employed, suggesting the use of foreign preparations until the Bolivian institute of bacteriology begins to function.

In Uruguay the fight against diphtheria has been intensified and 50,000 Uruguayan pesos (\$20,000) set aside by parliament

tary law. It is conducted by the Centro Antidiftérico under the control of the national department of public health. According to a law that is to be valid for one year, inoculation may be enforced where necessary. Diphtheria has increased in Uruguay since 1928. Uruguay's mortality rate from diphtheria is among the highest. Ramon's anatoxin, according to a report of Drs. Léunda and Raggio in the *Archivos de pediatría del Uruguay*, has achieved striking results. Three doses were sufficient to achieve immunization in from 80 to 95 per cent. Good results have also been obtained with the alum toxoid of Glenny and the preparation of Sordelli that is activated by aluminum hydroxide. The peak of immunization is reached in the third to the sixth month and diminishes after a year. They recommend the inoculation of all children 1 year old and in special cases those aged 9 months. Since children 10 years old and older may manifest reactions, it is recommended that small doses of from 0.1 to 0.2 cc. be used at first. In remote regions where only a single vaccination can take place, satisfactory results have been obtained with aluminum toxoid.

New Tuberculosis Hospital

The Hospital Nacional Central, formerly a military hospital, was dedicated Feb. 18. It contains 600 beds and will remain under the control of the federal department of public health until the national tuberculous commission, created by law, begins to function. Dr. Antonio Cetrángolo was appointed as its head and an extensive staff of associates provided for. Prof. A. Ceballos was selected as director of the surgical division. The budget for the first ten months of operation will amount to about 900,000 Argentine pesos (\$270,000). Several new pavilions have been added to the old building. One of these is intended for surgery and contains 120 beds. The hospital, which will also coordinate the dispensaries scattered over the country, is intended for male patients only, since women use hospital services far less than men.

Prevention of Venereal Disease

The Argentine League of Social Prophylaxis reports that in 1939 in Buenos Aires more than 3,000 persons were taken care of without charge and 742 were given premarital examinations. About 100 popular lectures, supported by scientific films of French origin, were given. Thousands of pamphlets were distributed, numerous posters exhibited and the construction of an institute of sex hygiene recommended. This kind of propaganda supplemented the activities of the federal department of public health.

Marriages

RICHARD WILLIAMSON FOWLKES, Richmond, Va., to Mrs. Ferebee Fenner Cooper of Henderson, N. C., March 1.

ROBERT C. HARDIN, Thompson, Iowa, to Miss Velma Holets of Swisher, in Cedar Rapids, Dec. 27, 1939.

FRED F. AGNEW, Independence, Iowa, to Nellie B. Sayers of Milwaukee, in Dubuque, Iowa, Dec. 23, 1939.

HENRY BEALL GWYNN, Washington, D. C., to Miss Patricia Hurley at Belmont, Va., April 12.

SAMUEL ROSSITER WALLIS, Lihue, Kauai, Hawaii, to Miss Mary Dorothea Rice, April 2.

JAMES FREDERICK O'DANIEL to Miss Bennetta Lomax, both of Atlanta, Ga., March 3.

MAYNARD P. SMITH to Miss Mary Helen Young, both of Baltimore, January 19.

ZIGMORE HARRIS to Miss Sylvia Estelle Hirsh, both of Chicago, April 14.

EARLE N. THOMPSON to Miss Marion Classen, both of Milwaukee, March 23.

SAMUEL J. HILLER to Miss Annette Richman, both of Milwaukee, March 17.

Deaths

John Lovett Morse • Newton, Mass.; Harvard Medical School, Boston, 1891; assistant in clinical medicine from 1896 to 1900, instructor of pediatrics from 1903 to 1906, assistant professor from 1906 to 1911, associate professor from 1911 to 1915, professor from 1915 to 1921 and since 1921 professor emeritus at his alma mater; professor of pediatrics emeritus at the graduate school; member and past president of the American Pediatric Society and the New England Pediatric Society; a founder and past president of the American Academy of Pediatrics; member of the Association of American Physicians; consulting physician to the Infants' Hospital, Children's Hospital, Boston Floating Hospital and the Beth Israel Hospital; author of "Case Histories in Pediatrics" and "Clinical Pediatrics"; co-author with Dr. F. B. Talbot of "Diseases of Nutrition and Infant Feeding" and "The Infant and Young Child" with Drs. E. T. Wyman and L. W. Hill; aged 74; died, April 2, of coronary thrombosis.

Alexius McGlannan • Baltimore; College of Physicians and Surgeons, Baltimore, 1895; professor of surgery at the University of Maryland School of Medicine and College of Physicians and Surgeons from 1913 to 1937 and since 1937 professor emeritus; member of the House of Delegates of the American Medical Association in 1915, 1917, 1930, 1931 and 1932; past president of the Medical and Chirurgial Faculty of Maryland; member of the American Surgical Association, Southern Surgical Association and the American Gastro-Enterological Association; fellow of the American College of Surgeons; consulting surgeon to the Mercy Hospital; author of the "Manual of Organic and Physiological Chemistry" and the "Manual of Physics and Inorganic Chemistry" published in 1903, and others; aged 67; died, February 25, of cerebral hemorrhage, arteriosclerosis, hypertension and auricular fibrillation.

Thomas Allen Groover • Washington, D. C.; Columbian University Medical Department, Washington, 1898; member and past president of the American Roentgen Ray Society and the Medical Society of the District of Columbia; member of the Radiological Society of North America and the American College of Radiology; at one time vice president of the Southern Medical Association; formerly professor of roentgenology at the George Washington University School of Medicine; at one time medical inspector of schools; radiologist on the staff of the Doctors' Hospital; established the x-ray department at the Emergency Hospital in 1900 and served as radiologist to that institution until 1929; aged 62; died, April 20, of carcinoma.

Overton Brooks • Chicago; Northwestern University Medical School, Chicago, 1906; fellow of the American College of Surgeons; naval examining officer in Chicago during the World War; past president of the North Side Branch of the Chicago Medical Society; was surgeon to the Chicago Great Western, Monon and Erie railroads; aged 59; on the staffs of St. Joseph's Hospital and the Henrotin Hospital, where he died, March 28, of lymphosarcoma and pneumonia.

Andrew Arthman Bruere, Montreal, Que., Canada; University of Edinburgh Faculty of Medicine, Edinburgh, Scotland, 1887; at one time assistant professor of bacteriology at the McGill University Faculty of Medicine; member of the American Association of Pathologists and Bacteriologists and the Society of American Bacteriologists; formerly director of the clinical bacteriologic laboratory of the Royal Victoria Hospital; aged 75; died, February 21.

John Henry Connaughton Gallagher • Chicopee, Mass.; Baltimore Medical College, 1903; member of the American Academy of Ophthalmology and Otolaryngology and the New England Otolological and Laryngological Association; served during the World War; at one time school physician and member of the school board for many years; formerly on the staff of the Mercy Hospital, Springfield; aged 58; died, March 18, in St. Petersburg, Fla.

William Eugene Vose • Colonel, U. S. Army, retired, Charlottesville, Va.; University of Virginia Department of Medicine, Charlottesville, 1899; entered the army as an assistant surgeon in 1901; served during the World War; retired as a lieutenant colonel, Oct. 31, 1919, for disability in line of duty; by a special act of June 21, 1930, was retired as a colonel; aged 62; died, February 29, of coronary thrombosis.

Hugh Nelson Page • Augusta, Ga.; University of Virginia Department of Medicine, Charlottesville, 1905; professor of anatomy at the University of Mississippi from 1909 to 1911 and professor of anatomy from 1911 to 1921; associate professor of orthopedic surgery at the University of Georgia School of

Medicine; on the staff of the University Hospital; aged 57; died, March 6, of cerebral thrombosis.

Jeremiah W. Sheehan, Winooski, Vt.; University of Vermont College of Medicine, Burlington, 1892; member of the Vermont State Medical Society; formerly health officer; for many years trustee of the public schools; on the staffs of the Bishop De Goesbriand Hospital, Burlington, and the Fanny Allen Hospital; aged 76; died, February 17, of angina pectoris and arteriosclerosis.

William Mack Majors, Paragould, Ark.; Memphis (Tenn.) Hospital Medical College, 1912; member of the Arkansas Medical Society; from 1935 to 1939 member of the State Medical Board of the Arkansas Medical Society; past president and secretary of the Greene County Medical Society; served during the World War; formerly county health officer; aged 58; died, February 14.

Clarence Leonard Whitmire • American Lake, Wash.; University of Illinois College of Medicine, Chicago, 1919; member of the Illinois State Medical Society and the American Psychiatric Association; senior physician on the staff of the Veterans Administration Facility; aged 44; died, March 2, in Tacoma of ruptured dissecting aneurysm of the aorta.

Michael Ignatius Shea, Chicopee Falls, Mass.; Georgetown University School of Medicine, Washington, D. C., 1904; formerly mayor and member of the board of health; for many years city physician; on the staff of the Mercy Hospital, Springfield; member of the board of trustees of the Monson State Hospital, Palmer; aged 64; died, February 11.

Dudley De Vore Roberts, New York; Columbia University College of Physicians and Surgeons, New York, 1898; on the staff of the Fifth Avenue Hospital from 1923 to 1926; member of the American Gastro-Enterological Association; served during the World War; aged 66; died, March 8, in the Doctors' Hospital of cerebral hemorrhage.

Charles Ellis Shultz, Bloomington, Ill.; Rush Medical College, Chicago, 1900; member of the Illinois State Medical Society; served during the World War; formerly city health officer; at one time superintendent of the Fairview Sanatorium, Normal; aged 73; died, March 2, in St. Joseph's Hospital, of hypertension and nephritis.

Mary Rees Mulliner, Wellesley, Mass.; Boston University School of Medicine, 1896; at one time in charge of corrective gymnastics, department of hygiene, Wellesley College; author of "Elementary Anatomy and Physiology," published in 1924, and "Mechano-Therapy," published in 1929; aged 80; died, February 19, of cardiorenal disease.

Lawrence Edward Keegan, St. John's, Newfoundland; L.K.Q.C.P., Ireland and L.R.C.S., Ireland, 1888, and University of Dublin School of Physic, Trinity College, Dublin, Ireland, 1896; superintendent of St. John's Hospital from 1909 to 1935; first president of the Newfoundland Medical Association; aged 73; died, February 19.

Harry Edward Purcell • Madison, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; member of the city board of health; formerly city health officer; aged 66; died, March 10, in the Firmin Desloge Hospital, St. Louis, of coronary occlusion.

Emmett Lee Jones • Cumberland, Md.; Medical College of Alabama, Mobile, 1886; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; consultant on the staff of the Memorial Hospital; aged 74; died, March 31, of mitral regurgitation.

James B. Ellingwood, Fortville, Ind.; Physio-Medical College of Indiana, Indianapolis, 1907; member of the Indiana State Medical Association; county health officer; formerly county coroner; aged 58; died, March 8, in St. Vincent's Hospital, Indianapolis, of cerebral hemorrhage.

James Benajah Phillips, Chattanooga, Tenn.; University of Louisville (Ky.) Medical Department, 1910; member of the Tennessee State Medical Association; on the staff of the Children's Hospital; aged 58; died, March 7, of injuries received in an automobile accident.

Fred Nunn Bybee, Glasgow, Ky.; University of Tennessee College of Medicine, Memphis, 1937; member of the Kentucky State Medical Association; aged 38; on the staff of the T. J. Samson Community Hospital, where he died, March 27, of carcinoma of the rectum.

Erwin William Johns • Albuquerque, N. M.; University of Minnesota Medical School, Minneapolis, 1923; member of the Radiological Society of North America and the American College of Radiology; aged 52; died, March 24, of a ruptured gangrenous appendix.

James Robinson Fuller, Atlanta, Ga.; Atlanta Medical College, 1915; member of the Medical Association of Georgia; served during the World War; aged 56; died, March 31, of injuries received when he fell four floors down the stairwell of his office building.

William Benjamin Jones, Plain City, Ohio; Western Reserve University School of Medicine, Cleveland, 1938; formerly resident on the staff of the City Hospital, Cleveland; aged 26; died, March 22, of an accidental gunshot wound in the head.

Roland Ringwalt Diller, Detour, Md.; University of Maryland School of Medicine, Baltimore, 1910; member of the Medical and Chirurgical Faculty of Maryland; aged 57; died, March 10, in the Frederick City (Md.) Hospital of myocarditis.

Harry Benjamin Thomas Ⓢ Bloomington, Ind.; Indiana University School of Medicine, Indianapolis, 1928; instructor of anatomy at his alma mater; aged 54; died, March 10, in the Robert W. Long Hospital following an operation for brain tumor.

John William Begg, Guilford, Conn.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1887; served during the World War; aged 78; died, March 2, in the Presbyterian Hospital, New York, of carcinoma of the prostate.

Charles L. Finch, Lansing, Mich.; Michigan College of Medicine and Surgery, Detroit, 1891; at one time superintendent of the Morgan Heights Sanatorium, Marquette; aged 71; died, March 12, of coronary thrombosis.

Henry Welsh Aldridge, Manitowoc, Wis.; University of Texas School of Medicine, Galveston, 1898; member of the State Medical Society of Wisconsin; aged 67; was killed, March 22, in an automobile accident.

Harris Howard Hamlin Ⓢ Seattle; University of Kansas School of Medicine, Kansas City, Kan., 1929; member of the North Pacific Society of Internal Medicine; aged 43; died, March 19, of heart disease.

Moses Andrew Beasley, Madison, Tenn.; Vanderbilt University School of Medicine, Nashville, 1904; member of the Tennessee State Medical Association; aged 65; died, March 9, in an automobile accident.

Frank Evans Chase, St. Louis; Chaddock School of Medicine, Quincy, Ill., 1890; served during the World War; aged 73; died, March 7, in the Veterans Administration Facility, Hines, Ill., of carcinoma.

George Darling Shortreed, Grand View, Man., Canada; Manitoba Medical College, Winnipeg, 1901; past president of the Manitoba Medical Association; aged 69; died, March 13, of coronary thrombosis.

Anton Christian Sorensen, York, Pa.; College of Physicians and Surgeons, Baltimore, 1911; served during the World War; aged 71; died, February 26, in the York Hospital of cirrhosis of the liver.

Charles Maxwell Harmon Ⓢ Cassopolis, Mich.; Johns Hopkins University School of Medicine, Baltimore, 1916; served during the World War; aged 50; died, March 26, of cerebral hemorrhage.

Peter Charles Manley, Scranton, Pa.; College of Physicians and Surgeons, Baltimore, 1881; member of the Medical Society of the State of Pennsylvania; aged 82; died, February 24, of arteriosclerosis.

Frank A. McKenna, Pawtucket, R. I.; College of Physicians and Surgeons, Baltimore, 1894; member of the Rhode Island Medical Society; aged 73; died, March 3, of chronic arthritis and myocarditis.

George Cyril Graves, Cincinnati; Indiana University School of Medicine, Indianapolis, 1913; aged 58; on the staff of the Longview State Hospital, where he died, March 30, of carcinoma.

William L. Bennett, Moultrie, Ga.; Southern Medical College, Atlanta, 1896; member of the Medical Association of Georgia; aged 67; died, March 20, in the Vercen Memorial Hospital.

William Herbert Dunham, Shaftsbury, Mich.; Detroit College of Medicine, 1906; aged 61; died, March 7, in the Sparrow Hospital, Lansing, of chronic nephritis following herniotomy.

Charles Turner Jones, Salt Lick, Ky.; University of Louisville Medical Department, 1910; member of the Kentucky State Medical Association; aged 53; hanged himself, February 23.

Martin William Fitzpatrick Ⓢ Decatur, Ill.; Rush Medical College, Chicago, 1903; aged 65; formerly on the staff of St. Mary's Hospital, where he died, March 22, of heart disease.

Edwin Forrest Price, Long Beach, Calif.; State University of Iowa College of Medicine, Iowa City, 1889; aged 72; died, February 23, of arteriosclerosis and cerebral hemorrhage.

Morris Popper, St. Louis; Barnes Medical College, St. Louis, 1900; at one time associate professor of pathology at his alma mater; aged 71; died, March 10, of heart disease.

Janet Murray, Schenectady, N. Y.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1891; aged 80; died, February 20, of myocarditis and arteriosclerosis.

Robert E. Goodlet, Dyersburg, Tenn.; Vanderbilt University School of Medicine, Nashville, 1875; aged 89; died, March 10, in the Baird-Brewer Hospital of a fractured hip.

William Charles Roser, Boonville, N. Y.; Long Island College Hospital, Brooklyn, 1893; aged 74; died, February 15, in St. Luke's Hospital, Utica, of arteriosclerosis.

Gioacchino A. Carella, Teano, Napoli, Italy; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1899; aged 71; died, March 8, of mitral insufficiency.

Timothy A. Duggan, New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1892; aged 76; died, March 6, of carcinoma of the pancreas.

Clay Holloway Weimer Ⓢ Shamokin, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; aged 64; died, February 27, of coronary occlusion.

Darrell Gordon Duncan, Oklahoma City; University of Oklahoma School of Medicine, Oklahoma City, 1928; aged 36; died, March 1, of pulmonary tuberculosis.

Walter James Cavanagh, Boston; Bellevue Hospital Medical College, New York, 1894; aged 72; died, February 8, in the Carney Hospital of cerebral hemorrhage.

Levi Clark Annis, Cedar Springs, Mich.; Detroit College of Medicine, 1896; formerly member of the local school board; aged 76; died, March 25, of myocarditis.

George Dampier Mitchell, Berkeley, Calif.; Northwestern University Medical School, Chicago, 1896; aged 77; died, February 21, of cerebral hemorrhage.

Tennant Bledsoe Brown, Columbia, Tenn.; Baltimore Medical College, 1897; aged 66; died, March 4, in the King's Daughters' Hospital of pneumonia.

George Albert Gorsuch, Toledo, Ohio; Toledo Medical College, 1896; served during the World War; aged 66; died, March 10, of cerebral hemorrhage.

Harriet F. Bigger Spaulding, Pasadena, Calif.; Hahnemann Medical College and Hospital, Chicago, 1893; aged 68; died, January 25, of diverticulosis.

John S. Paul, Dallas, Texas; Memphis (Tenn.) Hospital Medical College, 1903; aged 62; died, March 6, of cerebral hemorrhage and arteriosclerosis.

Herbert S. Carver, Barre, Vt.; University of Vermont College of Medicine, Burlington, 1884; aged 78; died, February 21, of cerebral thrombosis.

Comodore Connolly, Vienna, W. Va.; Baltimore University School of Medicine, 1893; aged 72; died, March 16, of coronary occlusion.

William Delton Jones, Ozan, Ark.; St. Louis College of Physicians and Surgeons, 1893; aged 76; died, January 26, of pneumonia.

Mathew W. Spearman Ⓢ Lake City, Fla.; Atlanta (Ga.) School of Medicine, 1911; aged 58; died, March 1, of coronary occlusion.

Eleanor Beatty, Pana, Ill.; Hering Medical College, Chicago, 1895; aged 81; died, March 21, of crypticlas and arteriosclerosis.

Paul T. Vaughan, Hot Springs National Park, Ark.; Baltimore Medical College, 1893; aged 69; died, March 5, of gastroenteritis.

Wallace Marsh Waterman, Oak Park, Ill.; Rush Medical College, Chicago, 1887; aged 74; died, March 6, of arteriosclerosis.

Wesley Wilson Tucker, Lafayette, Tenn.; Eclectic Medical Institute, Cincinnati, 1887; aged 78; died, February 28, of uremia.

David William Bolles, Long Beach, Calif.; Rush Medical College, Chicago, 1884; aged 80; died, February 9, of heart disease.

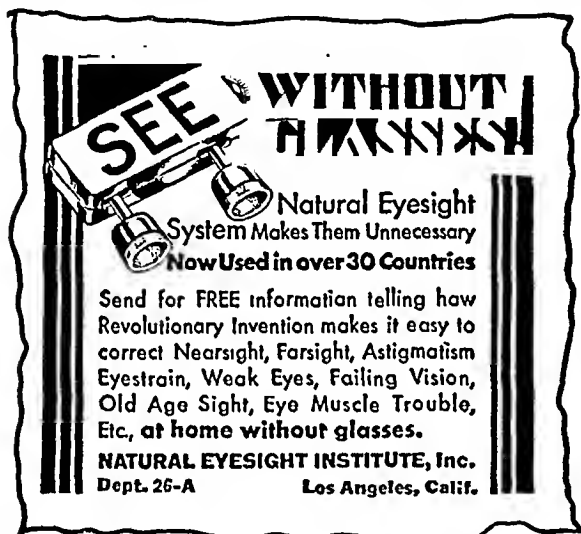
Bureau of Investigation

THE LIFETIME EYESIGHT SERVICE FRAUD

Barrett Attempts to Evade a Fraud Order

In February 1938 the Post Office Department reported that the mails had been closed to a fraudulent concern known as the Natural Eyesight Institute, Inc., Urbane L. Barrett, president, and Thomas J. Barrett, secretary, all of Los Angeles. A fraud order had been issued against the swindle nearly a year earlier—May 1937—but the quacks applied for a temporary injunction. Though the injunction was not issued the mail was ordered impounded until the case was disposed of. The injunction suit was dismissed in February 1938 and the fraud order was put into effect.

The public was warned about this fraud in *Hygeia* for November 1938 in an article titled "The 'Natural Eyesight Institute' Fraud." It was written by Arthur J. Cramp, M.D., formerly Director of the Bureau of Investigation. The fraud was shown to consist in selling on the mail-order plan a "system" of alleged eye exercises in which a mechanical gadget played a large part.



SEE WITHOUT
GLASSES

Natural Eyesight System Makes Them Unnecessary
Now Used in over 30 Countries

Send for FREE information telling how Revolutionary invention makes it easy to correct Nearsight, Farsight, Astigmatism, Eyestrain, Weak Eyes, Failing Vision, Old Age Sight, Eye Muscle Trouble, Etc., at home without glasses.

NATURAL EYESIGHT INSTITUTE, Inc.
Dept. 26-A Los Angeles, Calif.

Typical advertisement taken from the article in *Hygeia*, where this fraud was first exposed in November 1938.

The promoter of this swindle advertised that by the use of his mechanical toy and his "system" one could "See Without Glasses"; yet the facts were that the promoter himself was obliged to wear glasses! It was further claimed that the "system" would enable the purchaser of it to abandon the use of spectacles for the correction of defects of visual acuity due to nearsightedness, farsightedness, astigmatism, "old age sight," squint, cross-eyes, weak eyes and failing vision due to age.

Although the mails were closed in February 1938 to the "Natural Eyesight Institute, Inc."—which had operated from Los Angeles—two months later Urbane Barrett attempted to evade the fraud order by changing the name to "Lifetime Eyesight Service" and having remittances sent to him at Roseoe, Calif., through an express company. As Barrett had a number of what he called "shelf-worn" copies of his "system" and his gadgets he apparently felt that he might as well try to put over a "going out of business" sale. He advertised from Roseoe that he would sell his outfit—for which he previously had charged \$25—for a mere \$8. Those who ordered it were sent the material C. O. D. express. When the express company received the money it forwarded this by mail to Barrett's Los Angeles address.

As a result the Post Office Department issued a supplementary fraud order in April 1939 against Lifetime Eyesight Service, I. Barrett, executive secretary, and their officers and agents as such.

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE.—The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding, and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

Cholax.—Crescent-Kelvan Co., Philadelphia. Composition: Essentially sodium and magnesium sulfates, sodium phosphate, baking soda and citric and tartaric acids, with a trace of a lithium compound. For rheumatism, gout, uric acid and jaundice. Fraudulent therapeutic claims.—[N. J. 30611; November 1939.]

Concentra-Food.—Jean Ferrell, Inc., Chicago. Composition: Essentially powdered rhubarb root, some dried extractive material, soya bean tissues and Irish moss tissues. Adulterated because it contained rhubarb root, a drug, which had been substituted wholly or in part for an article which purported to be a food. Misbranded because designation as a food was deceptive, since it was not a food, in that it consisted essentially of a drug, powdered rhubarb root; other false and fraudulent representation.—[N. J. 30606; November 1939.]

Fatherland Tea.—Charles Stern, Pittsburgh. Composition: Essentially senna and buchu leaves, camomile flowers, fennel seed, juniper berries and dog grass. Fraudulently represented as a cure "for all diseases of the blood, liver, kidneys and stomach" and a good many other disorders.—[N. J. 30608; November 1939.]

Koch's (Dr.) Cough Syrup.—Koch Products Co., Winona, Minn. Composition: Essentially small amounts of ammonium chloride, volatile oils including menthol and anise, and extracts of plant drugs, such as licorice, with chloroform, sugar and water. For coughs, la grippe, severe colds, and worms in children. Fraudulent therapeutic claims.—[N. J. 30601; November 1939.]

Koch's (Dr.) Dyspepsia Tablets.—Koch Products Co., Winona, Minn. Composition: Small amounts of bismuth subcarbonate, chalk, charcoal and sugar. For all stomach complaints, including catarrh, dyspepsia and indigestion. Fraudulent therapeutic claims.—[N. J. 30601; November 1939.]

Koch's (Dr.) Liver Pills.—Koch Products Co., Winona, Minn. Composition: Extracts of plant drugs including aloë, nux vomica and an emodin-bearing drug, coated with sugar and lime carbonate. Fraudulently represented as a cure for all troubles arising from torpid and diseased liver.—[N. J. 30601; November 1939.]

Koch's (Dr.) Mentho-Campho.—Koch Products Co., Winona, Minn. Composition: A white powder consisting chiefly of sugar of milk and small amounts of menthol, camphor and starch. Fraudulently represented as a cure and remedy for catarrh, hay fever and all catarrhal conditions.—[N. J. 30601; November 1939.]

Koch's (Dr.) Vegetable Tea Tablets.—Koch Products Co., Winona, Minn. Composition: Plant drugs including licorice, saffraas and an emodin-bearing drug, with chalk and sugar. Fraudulently represented to keep one in health, cure constipation, dyspepsia, liver trouble, scrofula, skin diseases, stomach pains and kidney complaint; to relieve female disorders and ulcers, and to prevent appendicitis, catarrh, depressed spirits, diseased blood, jaundice and vertigo.—[N. J. 30601; November 1939.]

Nichols Lung Lile.—Nichols Chemical Co., Nashville, Tenn. Composition: Essentially water, sugar, alcohol and plant extracts, including licorice. Fraudulently represented to clean the blood, relieve pellagra and all catarrhal and lung troubles, including pneumonia, asthma and coughs.—[N. J. 30618; November 1939.]

Willson's Camphor and Eucalyptus Ointment.—Willson Monarch Laboratories, Inc., Edgerton, Wis. Composition: Small amounts of camphor and eucalyptus in a petrolatum base. Fraudulently represented as a penetrating skin remedy to heal all injuries and disorders of the skin, many irritations of the mucous membranes, inflammations, pimples; to cure catarrh, hay fever, lung trouble, croup and irritations due to poisons or conditions of the nerves, and to relieve pain.—[N. J. 30602; November 1939.]

Willson's Monarch Buchu Compound.—Willson Monarch Laboratories, Inc., Edgerton, Wis. Composition: Tablets containing extracts of plant drugs, including buchu, and compounds of sodium and potassium. Fraudulently represented as a cure for bladder and urethral disorders and as an antiseptic and stimulant to the mucous membranes of the genito-urinary organs, and as a solvent of stones in the bladder.—[N. J. 30602; November 1939.]

Willson's Monarch Cough Syrup.—Willson Monarch Laboratories, Inc., Edgerton, Wis. Composition: Essentially extracts of plant drugs, pine tar, with glycerin, sugar and water, and a small amount of chloroform. Fraudulently represented as a cure for coughs, bronchitis, croup, la grippe, whooping cough and asthmatic and hacking cough.—[N. J. 30602; November 1939.]

Willson's Monarch Healing Salve.—Willson Monarch Laboratories, Inc., Edgerton, Wis. Composition: A small amount of camphor in a petrolatum base. Fraudulently represented as a remedy for diseases of, and injuries to, the skin, including eczema.—[N. J. 30602; November 1939.]

Correspondence

CONTROL OF VENEREAL DISEASE IN WAR

To the Editor:—In the London letter in *THE JOURNAL*, January 20, page 266, under the title "Control of Venereal Disease in the War," is set out what purports to be a statement of the present policy of the British army authorities.

This letter appears to be an extract of an article which appeared in the *Lancet*, Nov. 18, 1939, in which the author gave details of the policy of Ruritania toward venereal disease.

In fact, the methods now employed in the British army do not include such things as arsphenamine injections three times a week, the use of liposoluble bismuth or the issue of leaflets on venereal disease to troops before they leave England.

In addition, prophylaxis is not compulsory, nor was Col. B. L. Ank ("Blank"!) lent to the army by the Ministry of Hygiene.

I should be very grateful, therefore, if you would take the earliest opportunity of bringing these facts to the notice of your readers.

T. E. OSMOND, Lieut. Col.

for Director-General, Army Medical Services.

The War Office, Thames House,
Millbank, S.W.1., London.

NOTE.—Our regular London correspondent apparently failed to grasp the very unusual method of presentation of the paper by E. T. Burke in the *Lancet*, Nov. 18, 1939, page 1082. Burke's article is merely a suggested scheme for the prevention and treatment of venereal disease and is not one necessarily that has already been adopted by "the Ruritanian army" or any other army. The author writes plainly as follows in the first paragraph of his summary: "A suggested scheme for the prevention and treatment of V. D. among troops is presented for simplicity as if it were already adopted by a mythical Ruritanian army." Burke's paper is, therefore, merely a plan which he thinks would be effective for the treatment of venereal disease if it should be adopted in the army.—Ed.

SYSTEMIC REACTIONS TO "SLOW EPINEPHRINE"

To the Editor:—Dorwart (*THE JOURNAL*, February 24, p. 647) has recently pointed out that occasionally severe reactions occur to "slow epinephrine."

We have noticed several similar reactions to a product labeled "epinephrine in oil." This material is stated to contain 2 mg. of epinephrine crystals in each cubic centimeter of peanut oil. The reactions, like the reaction reported by Dorwart, were controlled to a large extent by the production of venous stasis in the arm through the application of a blood pressure cuff above the injected site. The efficacy of slowing systemic absorption of epinephrine by this method was first pointed out by one of us (S. W. I.) in 1930 (*ibid.*, March 15, 1930, p. 765).

We feel that the reactions are typical of gross overdosage of epinephrine or of too rapid absorption. From our total experience it does not appear that these effects are due to intravenous inoculation.

Of the greatest interest is the fact that all these reacting patients at other times have been given injections of a different preparation containing epinephrine base in peanut oil, and none of them showed any untoward reactions to this product even though it represented the same suspension of 2 mg. of epinephrine in each cubic centimeter. We might add that so far we have seen no serious reaction to the epinephrine base in oil out of approximately 700 injections.

We feel that much of this difference can be explained on the basis of the first preparation possibly being hydrochloride crystals rather than the base. Since the hydrochloride is more soluble than the base in aqueous solutions such as tissue fluid,

it follows that the hydrochloride would be more rapidly absorbed from oil suspension, thus in some cases leading to symptoms of overdosage of epinephrine.

Although we have seen no severe reactions to epinephrine base in oil, it is necessary to take greater precautions with this material than with ordinary 1:1,000 solution of epinephrine. This should be done both because of the larger amount of active material being introduced (1 cc. of oil solution being equivalent to 2 cc. of 1:1,000 epinephrine) and because of its prolonged action. We feel that the initial adult dose should never exceed 0.5 cc. of epinephrine base in oil, and then if the initial dose is well tolerated it may be increased to as high as 1 cc. at a later injection.

S. W. INSLEY, M.D.

ALBERT SEGALOFF, M.S., Detroit.

Departments of Clinical Medicine and Anatomy,
Wayne University College of Medicine.

ROENTGEN AND X-RAYS

To the Editor:—I have for some years noticed an increasing tendency for physicians and surgeons, especially those employing x-ray apparatus in their work, to make an unwarranted application of the name of Prof. Wilhelm Konrad Roentgen. Professor Roentgen was an eminent physicist, professor of physics in the University of Würzburg, and doubtless made important contributions to the science of radiology.

However, he was not, as far as I know, the inventor of an x-ray tube, although he might have made or suggested modifications. As far as I can learn, the inventor of the original x-ray tube was Sir William Crookes, who desired to study the effects and qualities of the cathode ray when produced in a tube the interior of which was as nearly as possible a perfect vacuum.

When I first became acquainted with the revelations made of conditions, normal or abnormal, in the interior of the animal body by the employment of these rays, the tubes by which they were produced were called Crookes' tubes. At present a modification of these tubes devised by W. D. Coolidge, an American physicist, seems preferred.

Professor Roentgen did render an invaluable service in discovering and making known an important property of the x-rays, after they had become known to students of science. He published an article pointing out that the rays emanating from a Crookes tube have the power of penetrating a considerable thickness of material opaque to sunlight yet are arrested by a substance of considerably greater density.

For a number of years past there has been a tendency to extend the name of Roentgen to various appliances, effects and methods with which Professor Roentgen was not acquainted and credit for which he would, if living, be the first to disavow. Thus we have "roentgen" the international unit, "roentgenism," "roentgenization," "roentgenologist" and so on for a full half page of a good sized volume.

M. W. HOGG, M.D., St. Louis.

KARAYA GUM SENSITIVITY

To the Editor:—On page 747 of the March 2 issue of *THE JOURNAL* is an article on "Karaya Gum (Indian Gum) Hypersensitivity" by Dr. Karl D. Figley. We wish to call attention to some errors therein.

The protein concentrations of the two samples of gum are given as 0.0019 mg. and 0.002 mg. per gram. These should read 19 mg. and 20 mg. respectively.

Also the statement "It thus appears that karaya gum contains approximately 0.1 per cent total nitrogen" is incorrect, since on the basis of the analyses reported the total nitrogen content is approximately 1 per cent.

H. J. HEINZ COMPANY,
L. H. ALMY,
Pittsburgh.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

RABBIT ANTIPNEUMOCOCCIC SERUM AND SULFAPYRIDINE FOR PNEUMONIA

To the Editor:—Which is considered the best method to give type II rabbit antipneumococcic serum when sulfapyridine has been started before typing? Is it better in cases in which the temperature is less than 102 F. to give 100,000 units in a twelve hour period or to give a smaller amount and gradually increase the dose (for a few days)? How long after the temperature has been normal in the treatment of a patient who has had a reaction of dermatitis from sulfapyridine before the patient will be allowed to sit up in bed when the pulse is not over 72 and not under 65? How long for such a patient if the pulse is not over 82 while sitting up in bed before he should be allowed to sit up in a chair?

M.D., New Mexico.

ANSWER:—In answering this question it is assumed that sulfapyridine had been administered to the patient and that for some reason the patient's condition was not considered favorable, and it was decided to administer type II rabbit antipneumococcic serum, after typing had shown that the patient was suffering from a type II pneumococcus pneumonia.

In administering rabbit serum in this instance, the best practice would be to proceed as follows:

Ask the patient whether or not he has ever had asthma, hay fever, urticaria or any previous serum treatments which may have resulted in a reaction. Test his sensitivity to the serum by each of the following methods: 1. Conjunctival test: One drop of 1:100 dilution of serum in physiologic solution of sodium chloride is instilled into the conjunctival sac. If after fifteen minutes there is a moderate or marked injection of the conjunctiva and sclera, the test is positive for serum sensitivity. If the reaction is severe it can be abolished by placing one drop of 1:1,000 epinephrine solution in the conjunctival sac. 2. Intradermal test: Inject 0.1 cc. of a 1:100 dilution of the serum intracutaneously. If after fifteen minutes a red wheal larger than a dime (18 mm.) is present the cutaneous test should be considered positive. 3. Intravenous test: If tests 1 and 2 are negative and rabbit serum is being administered, inject 5 cc. of the 1:100 dilution of the serum intravenously, after first recording the pulse and blood pressure. If after five minutes the pulse has risen 20 beats or the blood pressure has fallen 20 mm. of mercury the patient must be considered sensitive to the serum, and under these conditions great care should be used in administering the serum for fear that a serum reaction of sensitivity may occur.

However, if tests 1, 2 and 3 are negative the next step is to perform a Francis skin test (Wood, W. B., Jr.: The Control of the Dosage of Antiscrum in the Treatment of Pneumococcal Pneumonia: II. The Clinical Application of the Francis Skin Test, *J. Clin. Investigation* 19:105 [Jan.] 1940) with a 1:1,000 dilution of the specific capsular polysaccharide derived from the type II pneumococci. This skin test is performed by injecting 0.1 cc. of the solution of the polysaccharide intracutaneously and 0.1 cc. of physiologic solution of sodium chloride close by as a control. The test must be read within fifteen or twenty minutes after the injection. A positive reaction consists of a wheal that is larger than the one which may be produced by the saline solution and which is surrounded by an area of erythema.

If the specific polysaccharide test is negative and the patient is not sensitive to serum, one can administer immediately a single dose of either 50,000 or 100,000 units of type II antipneumococcus rabbit serum slowly by the intravenous route.

Then an hour later the Francis skin test should be repeated and, if negative, another 100,000 units of rabbit serum should be administered intravenously. This dose may be repeated at hourly intervals until the Francis skin test becomes positive. When the Francis skin test becomes positive the administration of serum may be discontinued, as a positive Francis skin test developing in the course of serum therapy means that at the time the test is performed there is an excess of pneumococcus antibody in the blood of the patient.

In about 10 per cent of all cases the Francis test gives a pseudopositive reaction before any serum has been administered. In patients responding in this manner the Francis skin test is of no value in the control of serum therapy. In such cases serum should be given at the rate of from 50,000 to 100,000 units at hourly intervals until from 300,000 to 500,000 units of serum

has been given or a definite clinical improvement has been noted in the patient's condition.

In all instances when serum is being given it is wise to keep a 2 cc. syringe, full of epinephrine 1:1,000, at the bedside in order that it may be used at any time if a serum reaction occurs. It is also a wise practice in giving antipneumococcic serum to get the required amount of serum into the patient within a relatively short time.

In a patient who has had a dermatitis from sulfapyridine and who is convalescing from pneumonia, it would be acceptable practice to let him up after he had had a normal temperature for two weeks, provided his lungs are clear. This would probably apply also in both the instances stated in the latter part of the query.

COLCHICINE AND CANCER

To the Editor:—I should like to have information on the use of colchicine in cancer, both with and without x-rays.

M.D., Texas.

ANSWER:—Colchicine is an alkaloid which produces arrest of mitoses in the metaphase. The greatest arrest apparently occurs in cells which undergo rapid division. It has been used experimentally to study the rate of cellular multiplication, since the extent of arrested mitoses parallels the rate of cell multiplication.

The results in the literature concerning its effect on neoplasms are equivocal. The most reliable reports show either no definite regression of spontaneous tumors, after administration of colchicine, or regression followed by recurrence of the tumor. Definite regression of tumor growth in vitro has been demonstrated, however. It is probable that colchicine does produce a retarding effect on tumor growth but not in a sufficient measure to overcome the growth impetus of tumors in the body.

The use of colchicine, together with irradiation (x-rays or gamma rays), has been suggested but no authentic reports on this method of treatment are available.

COLLOIDAL IODINE FOR CORONARY DISEASE

To the Editor:—Please give me the consensus on the use of the colloidal iodine solution which has been advocated in the treatment of angina pectoris and coronary diseases; also whether this solution might be available for therapeutic use.

M.D., Mississippi.

ANSWER:—The benefits which are reported from the intravenous injection of a so-called colloidal iodine solution (0.2 per cent isotonic colloidal iodine [exact dosage not stated], $\frac{1}{150}$ grain [0.4 mg.] of hydrastinine and 7 grains of sodium cacodylate in 10 cc.) by Dr. Oscar Strauss (A New Management for the Relief of Angina Pectoris and Coronary Disease, *M. Rec.* 148:190 [Sept. 7] 1938 and *Illinois M. J.* 76:351 [Oct.] 1939) have not been shown to be due to the injected material. His claims in the light of existing scientific knowledge appear unwarranted until further studies are undertaken.

DEATH FROM ACUTE ALCOHOLISM

To the Editor:—I recently had an argument with a colleague about acute alcoholism as a cause of death. I maintained that, given a young adult in perfect health, it would be impossible for him to drink enough liquor to cause death and that before he could get sufficient liquor down he would either have severe nausea and vomiting or become so intoxicated that he just couldn't drink any more. In other words, my point was that if a person died of acute alcoholism there was some cardiac, renal or other pathologic condition which contributed to his death. Was I wrong or right?

M.D., Maine.

ANSWER:—While it is true that excessive drinking of alcohol often causes vomiting, the absorption of alcohol from the stomach and intestine is so rapid that the amount of alcohol lost by vomiting is usually insufficient to lower the blood alcohol level substantially. Also since the alcohol in the blood reaches its peak in about one to one and one half hours after heavy drinking, it is possible for a person to consume a fatal dose of alcohol while he is still conscious.

Peterson, Haines and Webster in Legal Medicine and Toxicology, volume 2, pages 618-619, list five cases of death following the drinking of alcohol. In four cases necropsies were performed and they indicated that death was due solely to alcohol. Case 1 is particularly to the point: "A moderate drinker, aged 25, in apparent good health, wagered that he could drink one pint of whisky within ten minutes. He drank $1\frac{1}{2}$ pints of cheap whisky and started for home. He soon became unconscious, vomited and became comatose. His face was livid, he breathed heavily, and after four or five convulsions he died in six hours from the time of drinking the spirits. Autopsy performed thirty-six hours after death revealed the following: pupils widely dilated and unequal; sinuses and pia

engorged; whole brain edematous; lungs engorged and lower portions dotted with pleural ecchymoses. From the stomach 14.5 cc. ($\frac{1}{2}$ ounce) of absolute alcohol was recovered; the liver contained 3.5 cc. (55 minims)."

PELVIC LYMPH NODE SUPPURATION AND TULAREMIA

To the Editor:—A woman aged 22 had tularemia a year ago. She stated that she had never felt well since her illness at that time. No specific treatment was received, and she was treated symptomatically. During the past year her chief complaint has been weakness and nervousness. Four weeks ago I saw her for the first time, when she gave a history of chills, fever and diarrhea of two weeks' duration. I was unable to make a diagnosis at first until I did a rectal examination and located a cul-de-sac abscess, which had never caused her any pain. This was drained, and she is gradually improving. She says she is feeling better than she has for the past year. There is no history of any pelvic infection. Blood agglutination is weakly positive for tularemia. This is the question I should like to have answered: Could she have had an infected pelvic lymph gland, as a result of her tularemia a year ago, which was the cause of the pelvic abscess? I was unable to demonstrate any organisms in a smear prepared from the abscess.

M.D., Ohio.

ANSWER.—Enlarged pelvic lymph nodes have been noted in cases of proved tularemic infection, but no record has been found of suppuration of these nodes. It is possible that this may have occurred in the case cited. However, it seems unlikely that the agglutination test would be "weakly positive" in any case one year after the onset of tularemia and especially unlikely in a case in which an abscess of tularemic origin was present. It would be necessary to know how well verified was the original diagnosis of tularemia and whether undulant fever and other infections had been carefully excluded then and now.

ACTINOMYCOSIS IN HAT BLOCKER

To the Editor:—A patient with the cervicofacial type of actinomycosis was successfully controlled with potassium iodide. The patient worked as a blocker in a hat manufacturing factory. His job was to steam and stretch wool felt bodies into proper shapes and sizes. Is it possible for a person to contract actinomycosis through such work? Are there any records of the disease contracted in this manner?

Harold Weinstein, M.D., Brooklyn.

ANSWER.—Actinomycosis has not been reported as an occupational disease in wool hat manufacture. When transmitted to man it is said to be mostly through handling grasses, seeds, straw or vegetable debris ordinarily contaminated by molds. Farmers, laborers, coachmen, grooms and millers are said to be most frequently attacked by the disease. There is a possibility that wool may contain the streptothrix, but by the time the wool hat reaches the blocker in the hat factory it is exceedingly unlikely that the organism would still be alive on the wool. Wool, from the time it is shorn up to the time it is used for the manufacture of hats, undergoes various treatments with acids and alkalis which would be likely to kill any fungi that it may contain. In the carotting necessary for felting, it is subjected to the action of strong nitrate of mercury. In the starting operation for making the hat it is again subjected to treatment with acids and hot water. In the dyeing of the hat it is again subjected to treatment with hot water, chromates and dyes. All these treatments would kill any organisms that may have originally been on the wool. The blocker does not handle the hat until it has gone through all these processes. It therefore seems highly improbable, if not impossible, for a blocker in a hat factory to contract actinomycosis as an occupational disease from the wool. It should be ascertained whether the wool used in this factory is subjected to the action of the chemicals usually used in wool hat making. If it is, the streptothrix cannot survive, but if it should be found that the wool is not treated sufficiently to kill possible contaminating fungi there may be a bare possibility that the patient's actinomycosis was of occupational origin.

TOXICITY OF CHLORATES IN GARGLE

To the Editor:—Potassium chlorate lozenges 5 grains (0.3 Gm.) have been found quite useful in certain cases of throat irritation; however, knowing the toxicity of the chlorates, I am wondering whether the slowly dissolving tablets are harmful and, if not, whether they would be it swallowed.

Clifford H. Kalb, M.D., Grafton, Wis.

ANSWER.—It is probably best in view of the known toxicity of potassium chlorate, that if it is used at all it be used in the form of a gargle. For those who cannot gargle efficiently, a moderate amount of use of potassium chlorate as a tablet generally produces no objectionable results. It is when these tablets are used ad libitum that untoward effects are liable to be produced.

The Council on Dental Therapeutics does not recognize tooth pastes and mouth washes which contain potassium chlorate. It lists the substance as an acute poisoning. In its book "Accepted Dental Remedies" it states:

"Symptoms: Pain in gastric region; nausea, vomiting. Dyspnea, cyanosis. Skin may be jaundiced. General excitation; delirium, collapse; coma. Methemoglobinemia, disintegration of corpuscles. Later, scanty urine or complete anuria, albuminuria, hematuria, methemoglobinuria, nephritis.

"Treatment: Gastric lavage; mucilaginous drinks. External heat. Carbon dioxide-oxygen inhalation. Caffeine or Digitalin hypodermically, if necessary. Blood transfusion in severe cases. Treat as for potential nephritis (alkalis and milk diet)."

FURSTENBERG DIET IN MÈNIÈRE'S SYNDROME

To the Editor:—Will you please give me the details on the Furstenberg diet for the treatment of Mènière's syndrome? Also the consensus as to its efficacy.

M.D., Alabama.

ANSWER.—The Furstenberg diet is based on the theory that retention of the sodium ion in the tissues of the inner ear is responsible for, or at least is a factor in, the attacks of Mènière's syndrome. The Furstenberg diet eliminates foods high in sodium, restricts foods with a moderate amount of sodium and eliminates as far as possible sodium chloride. At the same time, large doses of ammonium chloride are given to deplete the tissues of sodium through the excretion of sodium chloride in the urine.

As originally described by Furstenberg, the diet is as follows:

GROUP A.—The following foods may be taken daily:

1. Eggs, meat, fish and fowl as described.
2. Bread as desired.
3. Cereal, one of the following: Farina, oatmeal, rice, puffed rice or puffed wheat.
4. Potato and one or more servings of any of the following: (a) macaroni, (b) spaghetti, (c) rice, (d) corn, (e) cranberries, (f) prunes, (g) plums.
5. Milk as desired.
6. Vegetables and fruit daily of any fruit and of any vegetable not included in groups B and C, as desired.
7. Butter, cream, honey, jellies, jams, sugar and candy permitted as desired.
8. Tea and coffee as desired.

GROUP B.—Foods to be avoided:

All salt meats and fish, or bread, crackers and butter prepared with salt. Carrots, elms, condensed milk, raisins, caviar, cowpeas, olives, spinach, cheese, endive, oysters.

GROUP C.—Foods to be taken no more than twice weekly:

Lima beans, beets, buttermilk, cantaloup, cauliflower, celery, chard, dried coconut, dried currants, dates, figs, horseradish, kohlrabi, limes, muskmelons, peanuts, peaches, mustard, pumpkin, radishes, rutabagas, strawberries, turnips, turnip tops, watercress.

Note: All foods to be prepared and served without salt. Water intake unrestricted, although excessive quantities of liquid should not be taken.

Medication: Ammonium chloride 3 Gm. with each meal in capsules (six capsules, each containing $7\frac{1}{2}$ grains [0.5 Gm.] taken during the meal) three days on, two days off.

The diet is most effective for persons who can be hospitalized where the diet can be most accurately regulated and where there is the added factor of rest. It is of undoubted value in many cases of Mènière's syndrome, but some other workers have failed to obtain the uniformly good results reported by Furstenberg.

VARICOSITIES OF VULVA

To the Editor:—What is the treatment of varicosities on the vulva? The patient having them also has varicose veins on the anterior front wall of the vagina, on the posterior thighs and on the posterior surfaces of the knees and upper legs.

M.D., Illinois.

ANSWER.—The pattern of varicosities described suggests that tributaries of the internal iliac vein, notably the superior gluteal, the internal pudic and the inferior gluteal, are enlarged. The varicosities of the vulva may be partly due to reflux of blood from the external pudendal vein, which can be tied as it enters the internal saphenous vein; however, most of the venous engorgement, particularly in view of the presence of enlarged veins in the gluteal and sciatic regions, has spilled over from the internal iliac vein. This would suggest an old pelvic thrombosis. The vulvar veins had better be left alone; they possess no valves and an ascending pelvic thrombosis may be caused by injections.

POLLEN DESENSITIZATION DURING PREGNANCY

To the Editor:—A woman in her first pregnancy is expected to deliver at the end of August. Both by history and by scratch tests she is moderately sensitive to some of the grasses and especially sensitive to both ragweeds. I have been considering whether it would be preferable to use histamine with whatever symptomatic treatment may be necessary, as against the conventional desensitization. Is there any danger of abortion from a reaction following ragweed injection (she gives a history of generalized reactions following both ragweed injections and injections of epinephrine to control them)? Would there be any alteration in the child's inheriting the allergic diathesis?

Arnold M. Wiesen, M.D., Riverhead, Long Island.

ANSWER.—There is a possibility of inducing uterine cramps and abortion from a dose of pollen which would produce a general reaction. Occasional reports in the literature can be found of low abdominal pain and actual uterine contractions as part of a general reaction. While such a reaction is unusual, the danger is present, especially for one who is inclined to be highly sensitive to pollen. It is advisable in such a case to treat with the necessary pollens but to do so with great caution. The dose given should be such that no large local swelling is elicited. Increases in dose should be given only when the local swelling is small and no injection should be given until all induration and itching have disappeared from the site of the previous injection. The patient should be observed for at least a half hour after each injection and, if any constitutional reaction begins, epinephrine solution should be used immediately and a constrictor placed tightly above the site of the injection.

Should it be deemed inadvisable because of the possible danger of abortion to use specific treatment, palliative measures may be substituted. Ephedrine compounds by mouth are still the most reliable pharmacologic measures for this purpose. Histamine has had some favorable reports in cold urticaria. Its use in hay fever is, in the opinion of most specialists in this field, of questionable value. The use of a well made air filter, confining the patient for a considerable part of the day to the room thus equipped, should be seriously considered if the symptoms are severe enough.

Treatment with pollen can have no effect on the child's hereditary tendency to allergy, since it cannot alter the chromosomes. The inquirer may have in mind the possibility of transplacental sensitization of the child with pollen in the mother's tissue. This apparently does not occur, as there is no evidence of an increased proportion of hay fever in children born during the course of such treatment.

VASOMOTOR RHINITIS

To the Editor:—What is the prognosis of vasomotor rhinitis in childhood? Many children whom I have seen with vasomotor rhinitis for whom treatment was unsuccessful seemed to be free from the condition as they grew older. My clinical observation also indicates that this condition is less common in adults than in children. Further, I have never observed a case of severe vasomotor rhinitis successfully relieved, although several patients have gone to specialists in allergy. Am I correct, therefore, in assuming that in severe vasomotor rhinitis of childhood the hope for immediate relief is poor, whereas the hope for eventual relief, as the child grows older, is rather bright with or without treatment? M.D., California.

ANSWER.—It is assumed that by vasomotor rhinitis the inquirer has in mind the perennial type of the allergic nasal condition. Most authorities do not agree with the assumption expressed here that the hope for relief is poor, especially in children. However, these patients usually require careful study not alone from the allergic point of view but often from the point of view of the local nasal condition. Frequently the symptoms, while based primarily on a definite atopy, may be aggravated by the presence of a local nasal pathologic condition such as polyposis, fibroma of the nose or sinusitis. The allergic study in itself must be complete and not limited to cutaneous tests. Frequently observation for many months with repeated questioning may be necessary to evaluate the various etiologic factors even in cases in which the cutaneous reactions are positive. Unfortunately, too many patients are referred to the specialist in allergy with the request for cutaneous tests as the sole diagnostic procedure. While a carefully taken history may give the experienced physician clues to the causative factors, which in many cases are confirmed by positive cutaneous reactions, there are a large number of patients who have negative reactions. The diagnostic procedures must then be supplemented by careful environmental and dietetic studies. Instructions for making such studies are available in any of the recent works on allergy.

The frequency of relief varies from 50 to 70 per cent, according to the reports of most workers. Huber and Harsh believe that many of those who do not obtain relief through allergic study are patients with endocrine disturbances. Kuhn (quoted by Warren T. Vaughan, *Practice of Allergy*, St. Louis, C. V. Mosby Company, 1939, page 988) found that of 720

patients with nasal allergy 40.7 per cent were sensitive to inhalants, 5 per cent to foods and 54.3 per cent to inhalants and contact substances. Of these 720 patients 47 per cent were satisfactorily relieved by allergic management alone, 27 per cent by allergic management plus conservative local nasal therapy and 21.7 per cent by allergic therapy plus nasal operations, while only 3.5 per cent failed to get relief. Such a result, as Vaughan states, is an indication of the value of combining adequate allergic and adequate nose and throat therapy.

As to waiting for a child to "outgrow the condition," this occurs spontaneously in 5 per cent of the allergic cases. On the other hand, asthma follows nasal allergy in about 40 per cent of the cases. It is therefore unwarranted optimism to expect a spontaneous cure in a large proportion of cases.

SMALL DOSES OF MORPHINE AND EXCITEMENT

To the Editor:—Will you please let me know if the assertion is right that "little doses" of morphine will produce an excitement?

Kallner, M.D., Meshek Ein Havod, Palestine.

ANSWER.—The effects produced by small doses (from 1 to 5 mg., or $\frac{1}{60}$ to $\frac{1}{32}$ grain) of morphine are often different from the effects produced by the ordinary therapeutic doses. Mental effort is made easier, especially when mild pains such as headaches have been present. This is probably due to the removal of the inhibiting pain or the diminution of restraining influences. In some individuals even larger doses seem to have an excitant effect. In these cases there is a dilatation of the pupil rather than the well known pin point pupil of morphine narcosis. The statement that "small doses" of morphine will produce an excitement is true in a limited sense.

AMENORRHEA FROM CHANGED RESIDENCE

To the Editor:—Can you give me any information regarding the causes at menses ceasing when girls change location (e.g. attending college in another city) other than the matter of a change of food, change of routine, sleeping hours and emotional maladjustments? I believe that unless amenorrhea of this type exists for years it is advisable merely to institute good physical and mental hygiene and not resort to medication (excepting as may be indicated symptomatically, as in anemia). A great many physicians are using glandular therapy and I have not been impressed with its routine usefulness.

M.D., Texas.

ANSWER.—The inquirer is correct in assuming that the absence of menstruation in girls who change location is a harmless occurrence. In Germany, where large numbers of city girls are sent to work on farms for a year, many acquire an amenorrhea. A careful study of a large group of such girls for every possible cause for the amenorrhea led to the conclusion that the chief cause of the amenorrhea in these cases was a change of climate. No physical harm resulted from these periods of amenorrhea. We find the same condition in this country among girls who come from abroad and in young girls who go to camp during the summer months. Since in most instances the menses begin again spontaneously after a return to the original location or after an interval of time in the new location, there is no need to institute glandular therapy except in rare cases.

DUST, PTERYGIA AND COMPENSATION

To the Editor:—A rancher who drives a tractor in a region where constant dusty winds prevail developed bilateral pterygia. Could these pterygia be attributed to his occupation, and if so would he be eligible for benefits under compensation insurance for loss of time and expense incurred during operative correction of them? M.D., Arizona.

ANSWER.—While it is recognized that dust and wind are factors in causing pterygia, no case in which compensation was collected on this basis has been found. There seems to be a definite predisposition in these cases, since pterygia occurs in only a small proportion of persons exposed to the same conditions. Compensation would depend entirely on the attitude of the insurance company involved or that of the state compensation board.

OCCASIONAL PANTOPON AND NARCOTIC ADDICTION

To the Editor:—Would a man aged 37, who has been having attacks of angina once or twice a month for fourteen years, which requires one or two hypodermics at $\frac{1}{2}$ grain of pantopon for relief, be considered a morphine addict? He has no organic disease of the heart. What is the prognosis in this case? M.D., Georgia.

ANSWER.—If the patient does not receive more than $1\frac{1}{2}$ grains (0.085 Gm.) of pantopon or comparable dosage of morphine sulfate a month for the relief of anginal pain, he could not be classified as a morphine addict. The history regarding this patient is too indefinite to attempt a prognosis.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in *THE JOURNAL*, April 27, page 1690.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II, June 17-19. Part III, June or July, to be given in medical centers having five or more candidates desiring to take the examination. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: November 1940. If a sufficient number of applications were received before March 1 an examination will be held at New York, June 10-14. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: Written. October 21. Applications must be on file by September 1. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: General oral and pathologic examinations (Part II), (Group B) will be conducted in Atlantic City, N. J., June 7-10. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Oral. New York, June 8-10; Cleveland, Oct. 5. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, June 3-5. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: New York, June 10-11. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: Memphis, Tenn., Nov. 17, preceding the annual meeting of the American Academy of Pediatrics. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Cincinnati, May 17-18. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: New York, June 7-10. Sec., Dr. Byrl R. Kirklin, 102-110 Second Ave., Rochester, Minn.

Book Notices

Saint Louis Medical Society Centennial Volume. Cloth. Pp. 372, with illustrations. Saint Louis, 1939.

This beautifully bound and illustrated volume commemorates one hundred years of public service by members of the St. Louis Medical Society, which grew out of a meeting of seven physicians on Christmas day 1835. Today there are over 1,100 members and the society owns its own building and one of the best medical libraries in the country. The book is dedicated to the ninetieth annual session of the American Medical Association, which met in St. Louis last May. The American Medical Association had previously met in St. Louis several times, the first meeting having been in 1854, the second in 1873 and the third in 1886, three years after *THE JOURNAL* was founded. In 1919, when Dr. William H. Welch was president, the American Medical Association met in St. Louis and again in 1922, when for the first time the address of the incoming president was broadcast over the radio. The account of the first physician in St. Louis, Antoine Francois Saugrain, related by N. P. Dandridge, of Cincinnati, is thrilling. William Beaumont, who practiced in St. Louis after making his famous experiments on Alexis St. Martin, is appropriately commemorated. The complete series of pictures of presidents of the St. Louis Medical Society bears a unanimity of intelligence and character. There is also a picture of every member of the St. Louis Medical Society today. The general chairman of the Centennial Volume Committee, Dr. Robert Mueller and associates, the editor in chief, Dr. Joseph A. Hardy Jr., and associate editors, and the St. Louis Medical Society have added a most interesting and pleasing volume to the list of histories of medical organizations.

Vorlesungen über Feldchirurgie. Von Dr. med. Hermann Matti, Direktor der chirurgischen Universitätsklinik, Bern. Boards. Price, 3 marks. Pp. 56. Leipzig: Georg Thieme, 1939.

This booklet, ambitiously called "monograph" by the author, contains a surprising wealth of information based on the experience in the war of 1914-1918. Many statements and principles arbitrarily laid down by the writer will attract attention not only of military surgeons but of every one interested in traumatic surgery. A few examples can be cited here. The antiseptic method of treatment of wounds with tincture of iodine, diluted method of treatment of wounds with tincture of iodine, diluted solution of sodium hypochlorite and aniline dyes is defended by the author. Patients with infected fractures of the femur should not be transported at all, and those with apparently sterile

injuries not for one week if the journey requires more than from three to four hours. Dubs's modification of the Thomas splint, employing a leverage and a spring action, provides traction in addition to extension. Emphasis is laid on the necessity of early amputations in compound, badly infected fractures of the femur. Instead of the popular circular amputation the author advocates the two flap method to avoid a conical stump. He condemns primary as well as secondary closure of wounds caused by projectiles. Instead of a wide exposure, drainage and irrigation of injured articulations, the author recommends a meticulous débridement, removal of foreign bodies, primary closure of the articular capsule and filling of the articular cavity with an antiseptic liquid such as phenol or diluted solution of sodium hypochlorite. One remark is characteristic: the author considers as old fashioned the wish expressed in 1880 by Kocher that the consistency and velocity of projectiles be selected in such a manner that they will disable the combatants without producing excessive injuries.

Congenital Cleft Lip, Cleft Palate and Associated Nasal Deformities. By Harold Stearns Vaughan, M.D., D.D.S., F.A.C.S., Professor of Clinical Surgery, New York Post-Graduate Medical School, Columbia University, New York. Cloth. Price, \$4. Pp. 210, with 259 illustrations. Philadelphia: Lea & Febiger, 1940.

Dr. Vaughan's book is based on many years of teaching and operating. Many postgraduate students, looking for a short cut, found the information on this subject of cleft lip and palate so voluminous that it was inaccessible in the time they had to give to it. Therefore Dr. Vaughan epitomized the literature, adding to it much from his own rich store and describing in detail his own modifications of the technic of other surgeons. At the end of each chapter there is a bibliography pertinent to the particular division of the work.

The author suggests that the operation should not be performed under 18 months, the most favorable age being between the second and third year. At 5 or 6 a child is more cooperative and can be taught the use of various devices to improve speech. There is no need to wait for speech perfection before doing the operation, as has so often been stated elsewhere. Tonsils and adenoids may be removed after palatal closure rather than before, because of the scarring and deformity which may make complete union difficult or impossible. The teaching of correct speech after staphylorrhaphy is, of course, a sine qua non. The ability to close completely the velopharyngeal opening at will is the first essential to successful teaching of speech; therefore what seems to be successful surgery may not be such in reality, if the degree of palatal mobility is greatly impaired. Stretching of the area by digital procedure may help, but if it does not then the "push-back operation of Dorrance may be considered.

As for cleft lip, Dr. Vaughan prefers to operate when a child is between 2 weeks and 2 months of age. Repair of the lip is to be performed in practically all cases before staphylorrhaphy. The Collis operation and Blair's modification of Mirault's procedure are well recommended. Blair, of St. Louis, must be credited with the operation which has stimulated other workers to secure a higher average of excellent results. He plans to correct the associated deformities, such as alar asymmetry and downward displacement of lateral cartilages, to obtain a lip of ample length along the vermilion border. The means to this end are fully described. One gets the impression that lip repair is far more difficult than palate repair, especially from the cosmetic point of view.

The tenth chapter is devoted to "secondary" palate operations to correct complete or partial previous operative failures. It is comprehensive and sufficiently illustrated, although it cannot in the nature of things cover every eventuality. Complete credit is given to Veau, Lane and Davies-Colley for ingenious methods of closure. Here scar tissue works to the great disadvantage of the surgeon. In general the causes of failure depend on too much tension on the suture line, loss of tissue from poorly placed incisions and the cutting off of proper blood supply and loss of tissue through infection not properly forestalled or reduced to a minimum before or after operation.

In recent years the results in this field have been excellent, complete closure being the rule in most cases. Therefore the resort to an "obturator" has been limited to a few cases in which the surgeon cannot "borrow" enough tissue to effect repair.

The Participation of Medical Social Workers in the Teaching of Medical Students. Prepared by Harriett M. Bartlett for the Education Committee of the American Association of Medical Social Workers. Cloth. Price, \$1.50. Pp. 68. Chicago, 1939.

This small volume is intended as an evaluation of efforts that have been made by a number of medical schools to give their students a better appreciation of the social problems of medical practice by having medical social workers participate in teaching. The report was prepared by the author for the Education Committee of the American Association of Medical Social Workers and is largely based on a study of projects which have been in operation in eleven medical schools. The purpose of the book, as stated by Ida M. Cannon in the introduction, is not merely to summarize experiences but "to disclose the principles that should guide medical social workers in undertaking their responsibilities." This object is well fulfilled, although there is, perhaps, too much emphasis on the ancillary character of the social worker and the humility with which she should deport herself in this new educational role. The impression is also given that the participation of the social worker in medical education is merely an expedient forced on schools by the highly-institutionalized character of their clinical work. The few examples of case study, however, quite clearly demonstrate that, with the increasing complexity of society under the industrial system, clinical problems can no longer be solved by the methods of personal philanthropy. Medical social workers have advanced to the position of experts. With their realistic but humanitarian appraisal of social problems and their ability to utilize social resources, the lessons they may teach have applications to the practice of medicine at large. For this reason this book has something to offer to all members of the medical profession, although it was not directed to them. To teachers of medicine or public health contemplating the introduction into their clinical courses of instruction about the social implications of disease it will be especially valuable.

Milk and Nutrition: New Experiments Reported to the Milk Nutrition Committee. Part IV. The Effects of Dietary Supplements of Pasteurized and Raw Milk on the Growth and Health of School Children (Final Report): Summary of All Researches Carried out by the Committee and Practical Conclusions. Paper. Price, 2s. Pp. 70. Slough, Reading, England: National Institute for Research in Dairying, 1939.

In this final report the Milk Nutrition Committee presents a complete analysis of certain school-feeding experiments, summarizes the results of all the experimental work sponsored by the committee, which has been in existence since 1934, and attempts to evaluate the importance of these research studies in solving problems of human nutrition. The twofold objective of this research was to compare the nutritive values of raw and pasteurized milk and to ascertain the effectiveness for the growth and health of school children of a "milk-in-schools scheme," under which large numbers of children in Great Britain's schools are given a daily supplement of one third to two thirds of a pint of milk.

Over a period of about a year (from fifty-two to fifty-six weeks) 6,097 children between the ages of 5 and 14 years in five communities in England and Scotland were given a supplementary feeding each school day. In each school the children were divided at random into four groups. The children in these groups received respectively the following supplementary rations: (1) biscuits of negligible nutritive value, (2) one-third pint of pasteurized milk, (3) two-thirds pint of pasteurized milk and (4) two-thirds pint of raw milk. During the period of the experiment, each child was given four medical examinations, including (1) objective measurements (height, weight, chest circumference and muscular strength as indicated by a dynamometer test) and (2) subjective assessments of nutritional status, posture, expression and complexion. In addition, each teacher made four assessments of the intellectual capacity of each child.

After detailed consideration of the pitfalls encountered in the course of the experiment, the committee concludes that the groups of children receiving any milk supplement showed on the average greater increases in height, weight and chest circumference than the groups receiving biscuits. The increases were significantly greater in the groups receiving two thirds of a pint of milk, either raw or pasteurized, than in the groups receiving one third of a pint. No constant differences were found between the raw milk and the pasteurized milk in growth-

promoting effects. Although the data from the subjective assessments were less conclusive, larger numbers of the children who received milk than of the children who received biscuits were placed by physicians in the higher nutritional categories and by teachers in the intellectual categories.

The report compares the outcome of these experiments with that of other studies of the results of increasing the amount of milk in the diet of children, made in widely separated parts of the world. Among the explanations proposed for the relatively small gains made by the children in the present study is that the diets of British families have improved since some earlier studies were made and that this improvement reduces the chances of bringing about a striking change in the condition of children through small supplementary feedings of milk at school. The committee believes that the experiment has confirmed the value of milk for the growth and health of school children and has established the effectiveness of the milk-in-schools scheme.

Diagnosis and Management of Diseases of the Biliary Tract. By R. Franklin Carter, B.S., M.D., F.A.C.S., Associate Clinical Professor of Surgery, New York Post-Graduate Medical School, Columbia University, New York City, Carl H. Greene, A.B., Ph.D., M.D., Associate Clinical Professor of Medicine, New York Post-Graduate Medical School, Columbia University, and John Russell Twiss, A.B., M.D., F.A.C.P., Assistant Clinical Professor of Medicine, New York Post-Graduate Medical School, Columbia University. Cloth. Price, \$6.50. Pp. 432, with 90 illustrations. Philadelphia: Lea & Febiger, 1939.

This book is based on the experiences of the authors and their co-workers in the clinic for the study of diseases of the liver and biliary tract of the Departments of Medicine and Surgery, New York Post-Graduate Medical School and Hospital, Columbia University. It is clearly written. The physiology and the pathologic physiology of the biliary tract are amply discussed. The technic of duodenal drainage, the equipment and the microscopic examination of the biliary sediment, as described by Lyon, constitute one of the most important parts of their diagnostic study. While the authors lay special emphasis on this procedure, there are many clinicians who may disagree with them on the significance of their observations. They go at length into the significance of the bacteriologic study of duodenal drainage bile and think that this might have some correlation to infections of the biliary system. The medical treatment of cholecystitis is well covered and biliary dyskinesia is exceedingly well treated. The dietary management for ambulatory cases is based on the need for specific diets in the various types of gallbladder disease. The surgical management, which includes the selection of patients for operation, the operative results and their follow-up, is refreshing. Cholangiography, by one of their associates, is a timely contribution and, finally, the discussion of the relation of the pancreas to bile tract disease is appropriate. All in all, the physician will find this a comprehensive discussion of diseases of the biliary system, based on a large clinical experience.

Die Chirurgie des praktischen Arztes unter besonderer Berücksichtigung der kleinen Chirurgie und der dringlichen Chirurgie. Von Professor Dr. Erich Sonntag, Direktor des Chirurgisch-Poliklinischen Instituts der Universität Leipzig. Second edition. Paper. Price, 46 marks. Pp. 1,016, with 780 illustrations. Leipzig: Georg Thieme, 1939.

This large textbook of general surgery contains much practical information. About half of the book is concerned with the principles of general surgery such as anesthesia, antisepsis, treatment of wounds and infections. Especially emphasized are minor surgical procedures. Wounds in particular are mentioned in connection with every organ. The material is not well organized. Fractures are discussed in one end of the book, diseases of the vertebrae in the middle and diseases of the extremities at the other end, thus effectively scattering orthopedics from one end to the other. The arrangement of the book is strictly on a topographic basis beginning with the skull and taking up each organ as it is encountered in descent. The minor surgery of the first part and the minor surgery throughout are excellently detailed. Major surgical disorders are handled dogmatically and with little regard to the newer advances in surgery. Nasal suction is not mentioned in the treatment of intestinal obstruction. The technic of catheterization is well described and illustrated. This is a manual of surgery for the general practitioner, which excels in teaching first aid and minor surgery but is not recommended as a textbook of general surgery.

Death Loses a Pair of Wings: The Epic of William Gorgas and the Conquest of Yellow Fever. A Novel in Cadence. By Robin Lamson. Cloth. Price, \$3. Pp. 518. New York & London: Charles Scribner's Sons, 1939.

This is a long narrative poem describing the conquest of yellow fever by General William Gorgas. It recounts the boyhood of Gorgas, his medical education and his eventual triumph. The great length of the book makes it difficult to sustain style with perfection. It also detracts somewhat from scientific actuality to have a great many matter-of-fact physicians voice their opinions in blank verse. But all the facts are presented, and the volume is an interesting contribution both to medical history and to medical letters.

Demonstrations of Physical Signs in Clinical Surgery. By Hamilton Bailey, F.R.C.S., Surgeon, Royal Northern Hospital, London. Seventh edition. Cloth. Price, \$6.50. Pp. 310, with 377 illustrations. Baltimore: William Wood & Company, 1940.

The acquisition of surgical acumen and diagnostic ability is a painful and prolonged process. Anything which renders this process easier is always welcome. This interesting book enlivens the subject of clinical surgery and in almost epigrammatic fashion supplies a considerable quantity of information. The material is always practical and possesses a "down to earth" quality. The chapters on examination of the breast and hernias contain useful routines and are well explained. In a brief book such as this, with its many illustrations, certain phases are necessarily skimpy. Postoperative complications for which every surgeon must be alert could be treated more fully. None the less, the book represents a splendid condensation of surgical art.

Research in Medicine and Other Addresses. By Sir Thomas Lewis, C.B.E., F.R.S., M.D., Physician in Charge of Department of Clinical Research, University College Hospital, London. Paper. Price, 5s. Pp. 75. London: H. K. Lewis & Co., Ltd., [n. d.].

Here are a number of the best essays of Sir Thomas Lewis, notable for his analysis of the relationship of clinical medicine to physiology and the trend of clinical science. He is firmly of the belief that the opportunity for research in clinical science is great and has never been as fully utilized as it should be. It is Dr. Lewis's opinion that all clinical science must be firmly grounded in physiology. The practitioner must frequently arrive at his conclusions by an intuition, which is known as the art of clinical medicine. His experience and his excellent literary style make the book most thought provoking.

Stedman's Practical Medical Dictionary of Words Used in Medicine with Their Derivation and Pronunciation Including Dental, Veterinary, Chemical, Botanical, Electrical, Life Insurance and Other Special Terms; Anatomical Tables of Titles in General Use, the Terms Sanctioned by the Basic Anatomical Convention; the New British Anatomical Nomenclature; Pharmaceutical Preparations Official in the U. S. and British Pharmacopelas or Contained in the National Formulary; and Comprehensive Lists of Synonyms. By Thomas Lathrop Stedman, A.M., M.D., and Stanley Thomas Garber, B.S., M.D. With Etymologic and Orthographic Rules. Fourteenth edition. Fabrikoid. Price, \$7.50 with thumb index (without index, \$7). Pp. 1,303, with illustrations. Baltimore: William Wood & Co., 1939.

Now in its fourteenth edition, this is a standard work. The present edition begins with an excellent reproduction of the Oath of Hippocrates and provides many new words, particularly relating to the hormones, the vitamins and chemotherapy. Dr. Stedman himself worked on the present edition until May 27, 1938, when he died at the age of 84. The present edition is therefore edited by his nephew, Dr. S. T. Garber.

Preliminary Industrial Hygiene Survey of Indiana Industries. By The Bureau of Industrial Hygiene. Indiana State Board of Health. Verne K. Harvey, M.D., C.P.H., Director. Paper. Pp. 162, with illustrations. Indianapolis, 1939.

This is another of the statistical presentations defining industrial hazards associated with particular occupations which have been undertaken by divisions of industrial hygiene in state health departments at the original behest of the U. S. Public Health Service. The results of the survey are presented in sixty-one tables, together with other illustrative material and text. Facilities now provided by industry to protect workers from harmful exposures are meager, according to this evidence, a situation which the creation of a division of industrial hygiene is designed, at least partially, to correct. Other recommendations in the report urge that occupational diseases be reported by physicians,

that industrial plants maintain acceptable and uniform absence records, and that medical and nursing service be widely extended. Evidently much educational work is necessary before every one in industry will draw full benefit from an industrial hygiene program.

A Child is Born. By Mary McDougal Axelson. Cloth. Price, \$2.50. Pp. 298. Caldwell, Idaho: Caxton Printers, Ltd., 1939.

This is a novel on which the motion picture recently current was based. The motion picture was pretty bad; the novel is better than the motion picture and still not good. Apparently for purposes of drama, it has been necessary to concentrate a lifetime of serious obstetric mishaps into a single work. Life does not really proceed at such a pace.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Hospitals: Liability of Corporation for Services Rendered at Officer's Request.—Kravis became ill with pneumonia while traveling on business for the defendant corporation, his employer. He notified the corporation by telegram. The following day the hotel at which he was registered received a telegram from the corporation stating that Freudenfels, the secretary of the defendant corporation, would arrive at the hotel later that day and requesting that Kravis's attending physician be available for consultation. After Freudenfels arrived he requested the attending physician to spare no expense in treating Kravis and assured him and the superintendent of the plaintiff hospital that the defendant corporation would take care of all expenses. Kravis was removed to the plaintiff hospital, where he remained some weeks. On two different occasions the attending physician received a letter from the defendant corporation, signed by Freudenfels as secretary, requesting information concerning Kravis's condition. On the failure of the defendant corporation to pay the hospital bill, the plaintiff hospital brought suit against it and recovered judgment. The corporation then appealed to the superior court of Pennsylvania.

The corporation apparently contended that the evidence adduced in the trial court was insufficient to prove any authority on the part of Freudenfels, its secretary, to bind it for the payment for the services sued on. Express testimony, said the superior court, to prove Freudenfels's authority was not indispensable. The relation of the parties, the necessity for immediate medical attention, the conduct of Freudenfels and the other attending circumstances were factors sufficient to establish agency with power to act. We concede that neither a subordinate agent nor an officer of a corporation has implied authority to bind it for medical services rendered an injured employee except under certain limited circumstances. The agent's or officer's authority to bind a corporation seems to depend, among other things, on (1) the alleged agent's position with relation to the corporation; (2) the time, place and manner of the injury or illness as bearing on the existence of an emergency, and (3) the position of the injured person with relation to the company. In this case Freudenfels was an executive officer of the corporation and he unequivocally held himself out as having authority to bind the company. Kravis appeared to be a valuable employee of the defendant. When he suddenly became ill while on the business of the corporation, an emergency situation was created which was recognized by it. His notification addressed to the defendant was promptly answered by its secretary, who came immediately and expressly agreed on behalf of the company to pay the hospital and medical expenses. Corporations, continued the court, are necessarily required to conduct their business through agents. Their liability is not limited to such acts of their agents as are expressly authorized or necessarily implied; it also embraces all acts of agents within the apparent scope of their authority. A just protection to persons dealing with

corporations imperatively requires that the act of the agent, within the general scope of the business with which he is entrusted, shall bind the corporation, although the specific act may be in excess of his private instructions.

In the opinion of the court, the evidence was sufficient to show implied authority in Freudenfels to contract for the services rendered to Kravis. Where the authority of an agent is to be implied from the conduct of the parties, or established by witnesses, the fact and scope of the agency are for the jury when there is sufficient testimony on the record, if believed by the jury, to establish the fact of agency and the authority of the agent. Taking into consideration, said the court, all the circumstances in this case, it cannot be said as a matter of law that Freudenfels lacked implied or apparent authority to bind the corporation for the payment of medical expenses rendered its employee.

The judgment in favor of the hospital was affirmed.—*Hahnemann Hospital v. Golo Slipper Co., Inc. (Pa.), 5 A. (2d) 605.*

Right of Radio Station to Breach Contract to Broadcast Advertising for Unlicensed Chiropractor.—The plaintiff, a chiropractor, undertook to practice in a small Texas town near the Louisiana border and within a short distance of population centers in Louisiana, in which state he was not licensed to practice. He contracted with the defendant radio station, which broadcasts from Louisiana, to broadcast a series of radio announcements as to the location of his office in Texas and as to his willingness to accept patients. The chiropractor's aim apparently was by means of the broadcasts to attract residents of Louisiana to his office in Texas. The radio station, however, after making one such broadcast refused to make further announcements. The plaintiff then sued the defendant in the Louisiana courts for breach of the contract, alleging as damages the cost of opening his office in Texas and stated sums for loss of business and for humiliation and mental agony suffered. From a judgment of the trial court in favor of the radio station, the chiropractor appealed to the court of appeal, Louisiana, second circuit.

The court of appeal held that the chiropractor had not suffered any actual damages by reason of the asserted breach of contract by the radio station. The chiropractor, said the court, after the refusal of the defendant to continue the radio announcements did not close his office but continued to practice in Texas and use the equipment therein, the cost of which he alleged as an element of damages. The court further refused to allow a claim for loss of business based on the difference between what the chiropractor had received during a period in which he practiced in Arkansas and the average amount he received monthly from his Texas practice. In the first place, said the court, it does not appear that his practice would have been benefited from the radio publicity and, secondly, the asserted damages are conjectural.

The court further held that the chiropractor was not even entitled to be awarded nominal damages for the alleged breach of contract. The chiropractor, said the court, was not licensed to practice in Louisiana, and had he practiced in Louisiana he would have been violating the medical practice act of this state, which prohibits the practice of medicine by a person not licensed to do so and in construing which the Supreme Court of Louisiana has held that to practice chiropractic is to practice medicine. While the court did not determine that the contract in question was illegal, it stated that it was apparent that the primary purpose of the entire venture of the chiropractor in establishing the office in Texas and in entering into the contract for radio time was to evade applicable Louisiana laws by inducing Louisiana residents to come to the chiropractor for treatment in Texas. Since an award for nominal damages, continued the court, is founded on equitable considerations, one who seeks such damages must come into court with clean hands. The chiropractor, in the opinion of the court, did not possess this "required legal immaculateness" and was not entitled to recover nominal damages.

The judgment in favor of the radio station was accordingly affirmed.—*Norman v. Radio Station KRMD, Inc. (La.), 187 So. 831.*

Society Proceedings

COMING MEETINGS

- American Medical Association, New York, June 10-14. Dr. Olin West, 535 N. Dearborn St., Chicago, Secretary.
- American Association for the Surgery of Trauma, Atlantic City, N. J., June 7-8. Dr. Ralph G. Carothers, 409 Broadway, Cincinnati, Secretary.
- American Association for Thoracic Surgery, Cleveland, June 6-8. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.
- American Association of Genito-Urinary Surgeons, Skytop, Pa., June 20-22. Dr. Charles C. Higgins, 2020 East 93d St., Cleveland, Secretary.
- American Association of the History of Medicine, Atlantic City, N. J., May 4-5. Dr. Henry E. Sigerist, 1900 East Monument St., Baltimore, Secretary.
- American Association on Mental Deficiency, Atlantic City, N. J., May 22-26. Dr. E. Arthur Whitney, Washington Road, Elwyn, Pa., Secretary.
- American Broncho-Esophagological Association, New York, June 5. Dr. Paul Holinger, 1150 N. State St., Chicago, Secretary.
- American College of Chest Physicians, New York, June 8-10. Dr. Robert B. Homan Jr., P. O. Box 1069, El Paso, Texas, Secretary.
- American College of Radiology, New York, June 12. Mr. M. F. Cahal, 540 North Michigan Blvd., Chicago, Executive Secretary.
- American Gastro-Enterological Association, Atlantic City, N. J., June 10-11. Dr. Albert F. R. Andresen, 88 Sixth Ave., Brooklyn, N. Y., Secretary.
- American Gynecological Society, Quebec, Canada, June 17-19. Dr. Richard W. TeLinde, 11 East Chase St., Baltimore, Secretary.
- American Heart Association, New York, June 7-8. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.
- American Laryngological Association, Rye, N. Y., May 27-29. Dr. C. J. Imperatori, 108 East 38th St., New York, Secretary.
- American Laryngological, Rhinological and Otolological Society, New York, June 6-8. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.
- American Medical Women's Association, New York, June 9-10. Dr. Elizabeth Parker, 1835 Eye St., Washington, D. C., Secretary.
- American Neurological Association, Rye, N. Y., June 5-7. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.
- American Osteopathic Association, Hot Springs, Va., June 3-5. Dr. Eugene A. New Haven, Conn., Secretary.
- American Society of Clinical Pathologists, Kansas City, Mo., May 6-9. Dr. Ralph J. cond Ave. S.W., Rochester, Minn., Secretary.
- American Otolological Society, Rye, N. Y., May 30-31. Dr. Isidore Friesner, 36 East 73d St., New York, Secretary Pro-Tem.
- American Physiotherapy Association, New York, June 23-28. Mrs. Eloise T. Landis, 2065 Adelbert Rd., Cleveland, Secretary.
- American Proctologic Society, Richmond, Va., June 9-11. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.
- American Psychiatric Association, Cincinnati, May 20-24. Dr. Arthur H. Ruggles, 305 Blackstone Blvd., Providence, R. I., Secretary.
- American Radiology Society, New York, June 10-11. Dr. William E. Costolow, 1407 South Hope St., Los Angeles, Secretary.
- American Society for Clinical Investigation, Atlantic City, N. J., May 6. Dr. Eugene M. Landis, University of Virginia Hospital, Charlottesville, Va., Secretary.
- American Society of Clinical Pathologists, New York, June 6-10. Dr. Alfred S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.
- American Therapeutic Society, New York, June 7-8. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Secretary.
- American Urological Association, Buffalo, N. Y., June 24-27. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.
- Association for the Study of Internal Secretions, New York, June 10-11. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.
- Association of American Physicians, Atlantic City, N. J., May 7-8. Dr. Hugh J. Morgan, Vanderbilt University Hospital, Nashville, Tenn., Secretary.
- California Medical Association, May 6-9. Dr. George H. Kress, 450 Sutter St., San Francisco, Secretary.
- Connecticut State Medical Association, Hartford, May 22-23. Dr. Creighton Barker, 258 Main St., Hartford, Secretary.
- Illinois State Medical Society, Peoria, May 21-23. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.
- Kansas Medical Society, Wichita, May 13-16. Mr. Clarence G. Munns, 112 West Sixth St., Topeka, Executive Secretary.
- Maine Medical Association, Rangeley Lakes, June 23-25. Dr. F. R. Carter, 22 Arsenal St., Portland, Secretary.
- Massachusetts Medical Society, Boston, May 21-22. Dr. Alexander S. Begg, 8 Fenway, Boston, Secretary.
- Medical Library Association, Portland, Ore., June 25-27. Miss Anna C. Holt, 25 Shattuck St., Boston, Secretary.
- Mississippi State Medical Association, Jackson, May 14-16. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.
- Montana Medical Association of Bozeman, June 18-20. Dr. Thomas F. Walker, 206 Medical Arts Building, Great Falls, Secretary.
- National Gastroenterological Association, New York, June 4-6. Dr. G. Randolph Manning, Room 319, 1819 Broadway, New York, Secretary.
- National Tuberculosis Association, Cleveland, June 3-6. Dr. Charles J. Hatfield, 50 West 50th St., New York, Secretary.
- New Hampshire Medical Society, Manchester, May 14-15. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.
- New Jersey Medical Society of Atlantic City, June 4-6. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.
- New Mexico Medical Society, Albuquerque, May 27-29. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.
- New York Medical Society of the State of New York, May 6-9. Dr. Peter Irving, 292 Madison Ave., New York, Secretary.
- New York State Association of Public Health Laboratories, Rochester, May 20. Miss Mary B. Kirkbride, New Scotland Ave., Albany, Secretary.
- North Carolina Medical Society of the State of, Pinehurst, May 13-15. Dr. T. W. M. Long, 321 Hamilton St., Roanoke Rapids, Secretary.
- North Dakota State Medical Association, Minot, May 6-8. Dr. Albert W. Skelsey, 203 1/2 North Broadway, Fargo, Secretary.
- Ohio State Medical Association, Cincinnati, May 14-16. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.
- Oklahoma State Medical Association, Tulsa, May 6-8. Dr. L. S. Willour, 210 Plaza Court Bldg., Oklahoma City, Secretary.

Pacific Northwest Medical Association, Spokane, Wash., June 26-29. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
Rhode Island Medical Society, Providence, June 5-6. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.
Society of Surgeons of New Jersey, Paterson, May 22. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.
South Dakota State Medical Association, Watertown, May 20-22. Dr. Clarence E. Sherwood, Madison, Secretary.
Texas, State Medical Association of, Dallas, May 13-16. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1930 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

19:129-256 (Feb.) 1940

- Systolic Gallop Rhythm: Studies on Its Characteristics and Mechanism. C. C. Wolferth and A. Margolies, Philadelphia.—p. 129.
Cardiac Topography: Pathologic Studies of Anterior Aspect of Heart and Its Relationship to Anterior Wall of Chest in Common Heart Diseases. W. Dressler, New York.—p. 141.
Electrocardiogram in Pulmonary Embolism. M. Sokolow, L. N. Katz and A. N. Muscovitz, Chicago.—p. 166.
*Studies in Hypertensive Heart Disease: I. Incidence of Coronary Atherosclerosis in Cases of Essential Hypertension. D. Davis and M. J. Klainer, Boston.—p. 185.
*Id.: II. Role of Hypertension, Per Se, in Development of Coronary Sclerosis. D. Davis and M. J. Klainer, Boston.—p. 193.
*Id.: III. Factors in Production of Angina Pectoris. D. Davis and M. J. Klainer, Boston.—p. 198.
Electrocardiographic Observations on Pneumoperitoneum. B. J. Elwood, G. F. Piltz and B. P. Potter, Jersey City, N. J.—p. 206.
Effect of Chronic Constriction of Aorta on Arterial Blood Pressure in Dogs: Attempt to Produce Coarctation of Aorta. I. H. Page, Indianapolis.—p. 218.
Description of a New Plethysmograph. E. B. Ferris Jr. and D. I. Abramson, Cincinnati.—p. 235.

Coronary Atherosclerosis and Essential Hypertension.

—Davis and Klainer present further evidence that patients with essential hypertension show a comparatively high incidence of coronary atherosclerosis. They observed 137 patients with essential hypertension (ninety men and forty-seven women) and 324 controls (230 men and ninety-four women). The percentage of cases of hypertension in which there was marked coronary disease was as high before as it was after the age of 50. Between the ages of 30 and 49 years the incidence of severe disease in the control subjects and in the patients with hypertension was 15 and 44 per cent respectively, and at the age of 70 or more, 32 and 44 per cent respectively. The average for the six decades for patients with hypertension was 45 per cent and for the controls 27 per cent. In persons without hypertension the incidence of marked coronary disease at necropsy was much greater in men than in women, particularly below the age of 60; its occurrence in women less than 60 years of age was infrequent. Above this age there is a rapid rise, so that, after the age of 70, marked coronary disease is found as frequently in women as in men. Although the incidence of coronary disease is increased in women with hypertension, it is still considerably below that in men with hypertension. The incidence of coronary disease in women with hypertension is about the same as that in men without hypertension.

Hypertension and the Development of Coronary Sclerosis.—Davis and Klainer state that the evidence indicates that hypertension by itself is not the cause of the increased incidence of coronary atherosclerosis. Patients with severe hypertension, as evidenced by the general blood pressure level during life and by the extent of cardiac hypertrophy at necropsy, did not have any more coronary disease than did patients with mild degrees of hypertension; patients with hypertension caused by primary renal disease actually showed less coronary disease than a corresponding group of patients who did not have hypertension. The frequent association of coronary atherosclerosis

with hypertension suggests that the two are independent results of a common etiologic factor. A plausible explanation for their association is that atherosclerosis occurs, for reasons as yet unknown, in varying degrees in different individuals, and the distribution of the atherosclerotic process in a given individual is irregular. Such patients develop atherosclerosis of the coronary arteries, although the degree of involvement may not be sufficient to cause symptoms. If atherosclerosis develops in certain other parts of the body, permanent hypertension may result. Interference with the blood supply to other structures, not yet studied, may do likewise. This hypothesis explains the occurrence of marked coronary disease without hypertension and the high incidence of coronary sclerosis in patients with hypertension. The same concept is in harmony with the recognized fact that hypertension and coronary sclerosis occur frequently in patients with diabetes.

Hypertension and Angina Pectoris.—Davis and Klainer compared the anatomic changes in forty cases of angina pectoris with hypertension and twenty-one cases of angina pectoris without hypertension. They observed that an extreme degree of coronary disease, involving two or more major arteries, was present in 95 per cent of the patients without hypertension and in only 39 per cent of the patients with hypertension. The incidence of myocardial infarction was correspondingly much higher in the patients without hypertension. Angina pectoris thus often develops with less coronary disease if the patient has hypertension. Factors other than coronary insufficiency which are important in the production of angina pectoris in hypertensive heart disease are cardiac hypertrophy and increased cardiac work.

Archives of Internal Medicine, Chicago

65:465-660 (March) 1940

- *Toxic Hepatitis: Intermediary Fatal Form with Enlargement of Liver: Clinical and Pathologic Study. J. D. Kirshbaum and H. Popper, Chicago.—p. 465.
Formation of Edema in Eyelids of Man: Influence of Local Tissue Pressure, Skin Distensibility, Lymph Flow, Intra-Orbital Pressure Gradient and Venous Pressure. G. E. Burch, New Orleans.—p. 477.
Peptic Ulcer and Achlorhydria: Further Study of Role of Acid Gastric Juice in Pathogenesis of Peptic Ulcer. W. L. Palmer and P. B. Nutter, Chicago.—p. 499.
Hydatid Cysts of Lung. C. Haight and J. Alexander, Ann Arbor, Mich.—p. 510.
Colloidal Gold Reaction of Blood Serum in Diseases of Liver. S. J. Gray, Chicago.—p. 524.
*The Brain in Malignant Hypertension: Clinicopathologic Study. E. F. Rosenberg, Rochester, Minn.—p. 545.
Renal Infarction: Statistical Study of 205 Cases and Detailed Report of Unusual Case. H. J. Hoxie and C. B. Coggin, Los Angeles.—p. 587.
Disturbances of Rate and Rhythm in Hypertensive Heart Disease. N. Flaxman, Chicago.—p. 595.
*Clinical Characterization of Primary Carcinoma of Body and Tail of Pancreas. H. Levy and S. S. Lichtman, New York.—p. 607.
Urea Reabsorption and Relation Between Creatinine and Urea Clearance in Renal Disease. A. Arkin and H. Popper, Chicago.—p. 627.
Bright's Disease: Review of Recent Literature. W. S. McCann, Rochester, N. Y.—p. 638.

Toxic Hepatitis.—Kirshbaum and Popper studied fifteen fatal cases of jaundice in which the liver was found to be enlarged at necropsy much as in catarrhal jaundice, whereas the clinical picture was that of an acute fulminating hepatic disease, with death occurring within a short time, as in acute yellow atrophy. Modern textbooks of medicine fail to describe thoroughly such cases. There were ten men and five women; the youngest was 10 years of age, the oldest 58. The average duration of illness was nine and a half days. Ten patients presented symptoms of sudden onset, with chills, fever, vomiting, abdominal pain, jaundice, stupor and coma. Headaches were a frequent complaint. Anuria was observed in two. Six patients complained of joint and muscle pains. The diagnosis of acute primary hepatitis was made in eight, in one infectious hepatitis was considered, in four mechanical jaundice and in two uremia. Morphologically the condition is a type of fatal parenchymatous jaundice. The onset of the disease with jaundice, progressive until death, indicates a primary disease of the liver. The clinical course suggested acute yellow atrophy of the liver. A striking feature of differentiation was the enlargement of the liver. In this respect these cases may be compared with nonfatal catarrhal jaundice, in which the liver is also enlarged. The condition may be considered as an intermediary stage between catarrhal jaundice and acute atrophy of the liver. It demonstrates that

in fulminating parenchymatous jaundice the prognosis may be poor despite an enlarged liver. Two different processes were in the foreground: damage of the hepatic cells, characterized by central necrosis and heavy infiltration with fat and bile pigment, and enlargement of the organ. The enlargement was due to the presence of a protein-rich fluid between the hepatic cells or edema. The presence of proteins indicated that the edema was due to capillary damage, with subsequent inability to retain the plasma proteins within the lumen of the capillaries. When the amount of escaped proteins is high, the increasing fluid accumulates and leads to the dissociation of the cells. The picture of dissociation may be similar to the one observed in cadavers examined several days after death. In a case studied marked dissociation was present three hours after death, while it was absent in another in which necropsy was done nineteen hours after death. The degree of dissociation varied. The authors are unable to make a positive statement with regard to the etiologic factor, but a toxin may be assumed. Sometimes a food poison was mentioned in the history. Other factors were mentioned, such as syphilis, gonorrhea and infections of the upper respiratory tract. Probably several factors work together in the production of toxic hepatitis. As to the pathogenesis of icterus, it is believed that the combined damage to the capillaries and to hepatic cells is of importance. Central necrosis or marked dissociation are responsible for the interruption of the bile capillaries. A combination of serous hepatitis and damage to the hepatic cells is the chief factor for the development of jaundice, and this explanation probably holds for all types of parenchymatous disease of the liver. Regeneration of the liver in this condition is possible because the framework of connective tissue is intact. The existence of this fatal transitional form emphasizes the need for thorough and active therapy in every case of catarrhal jaundice. Therapy directed toward the damaged hepatic cells is difficult, but the abolishment of the edema may be effected by intravenous injections of hypertonic solution of dextrose. These seem to be of greatest value, since they facilitate dehydration of the interstitial tissues and storage of glycogen.

The Brain in Malignant Hypertension.—Rosenberg studied the brains of seventeen persons dying from malignant hypertension. The age range for the group was from 7 to 65 years, the mean 43. The duration of life after the onset of symptoms varied from four to eighteen months and averaged 8.9 months, justifying the designation "malignant." The symptoms were referable predominantly to the central nervous system. Practically all patients with malignant hypertension have some clinical evidences of cerebral disturbance. The systolic blood pressure in this group amounted to 200 and even to 250 mm. The diastolic often exceeded 120 mm. The appearance of the retina was that of narrowing, of sclerosis of the retinal arteries, flame-shaped hemorrhages, cotton wool exudates and edema of the optic disk. Evidence of cardiac damage was usually present, varying from simple enlargement, with accentuation of the aortic second sound, to advanced cardiac failure, with anasarca, orthopnea and cyanosis. Renal function was good in the early stages but often failed in the terminal stages. In the absence of a definite history of cerebrovascular accident with hemiplegia, the results of the neurologic examination were objectively negative in all but two instances in which the Babinski phenomenon was present. In five of the seven cases in which lumbar punctures were performed, pressure of the subarachnoid fluid was elevated at the time of the first examination whereas in two the pressure was normal. Two patients who had elevated pressures on a single occasion had normal pressures on subsequent studies. Thus it cannot be concluded that edema of the optic disks in a patient with malignant hypertension always denotes increased pressure of the cerebrospinal fluid, although usually these two conditions are associated. Destructive cerebral lesions were observed in twelve brains. From a comparison of the clinical data and the cerebral lesions observed at necropsy the cerebral syndromes of these patients may be divided into various types. Characteristic pathologic changes were found for each type. The primary cerebral lesions responsible for symptoms appear to be (1) intracerebral and extracerebral edema, (2) multiple

miliary destructive lesions (hemorrhages or infarcts or both) and (3) large destructive lesions. Heretofore many of the clinical phenomena were attributed to spasms of the cerebral vessels. These spasms may occur and be responsible for the lesions. Such an assumption, however, may lead the clinician to an unjustified sense of security concerning the brain. A history of focal cerebral symptoms in these cases was found to be associated constantly with more or less widespread cerebral destruction when the brain was examined carefully after death. Rosenberg shares the opinion of Rosenblath that each attack is due to the occurrence of one or more new foci and perhaps to increase in the size of the original ones.

Primary Carcinoma of Pancreas.—Levy and Lichtman encountered nineteen patients with carcinoma of the body and tail of the pancreas between 1926 and 1935. The diagnoses were confirmed at laparotomy or necropsy. The symptom complexes are explained on the basis of neoplastic invasion, local and distant metastases or mechanical pressure. The following clinical signs and symptoms were found to assume diagnostic significance: 1. A rapid loss of weight unaccounted for by diabetes, hyperthyroidism, tuberculosis, nervous anorexia, sprue or demonstrable malignant tumor. 2. A marked anorexia which was present in all but one case. 3. A noncolicky pain in the abdomen—either diffuse or in the upper portion—radiating to the lumbar region, unrelated to the digestive cycle and unrelieved by food. It was often nocturnal and relieved by change in posture. 4. Absence of anemia. 5. Absence of occult blood in the stool (which was observed unless the tumor invaded the duodenum or stomach). 6. A disturbed carbohydrate tolerance manifested by glycosuria, hyperglycemia or a dextrose tolerance curve of the diabetic type. 7. Atypical x-ray observations in the duodenum or stomach. 8. Elevation of the blood amylase. 9. Hemorrhagic ascites. 10. Peripheral venous thrombosis, which was observed in six cases. The authors believe that the absence of secondary anemia and of occult blood in the stool and the presence of significant loss of weight sharply differentiate a malignant growth of the body and tail of the pancreas from a gastric carcinoma, in which significant loss of weight is invariably coupled with secondary anemia and occult blood in the stool.

Bulletin New York Academy of Medicine, New York

16: 127-194 (March) 1940

- Physiology of Testes and Therapeutic Application of Male Hormone. C. R. Moore, Chicago.—p. 135.
Physiology of Ovaries. P. E. Smith, New York.—p. 153.
Biologic Significance of Nicotinic Acid. C. A. Elvehjem, Madison, Wis.—p. 173.

Canadian Public Health Journal, Toronto

31: 51-98 (Feb.) 1940

- Convalescent Measles and Scarlet Fever Serums: Their Use in Prophylaxis and Therapy. W. Thalheimer, New York.—p. 51.
Antipneumococcus Serum Treatment of Pneumonia. H. I. Kinsey, W. H. Brown and W. R. Feasby, Toronto.—p. 56.
Rehabilitation of the Mentally Ill. C. A. Buck, Toronto.—p. 62.
The Kitten Test for Staphylococcus Enterotoxin. C. E. Dolman, Vancouver, B. C., and R. J. Wilson, Toronto.—p. 68.
Contribution of Ontario Cancer Clinics to Control of Cancer. A. H. Sellers, Toronto.—p. 72.
Viability of Hemolytic Streptococci in Stock Cultures. R. Fraser, Sackville, N. B.—p. 77.
Sterilizing Eating Utensils by Chlorine. R. M. MacPherson, Peterboro, Ont.—p. 79.

Johns Hopkins Hospital Bulletin, Baltimore

66: 139-206 (March) 1940

- Placental Transmission of Sulfanilamide and Its Effects on the Fetus and Newborn. H. Speert, Baltimore.—p. 139.
Severe Aortic Insufficiency in Association with Congenital Malformation of the Heart of the Eisenmenger Type. Helen B. Taussig and J. H. Semans, Baltimore.—p. 156.
Metabolism of Tissue Cultures of Walker Rat Sarcoma 319. C. L. Gemmill, G. O. Gey and R. Austrian, Baltimore.—p. 167.
*Experimental Production of Cirrhosis of Liver by Means of Deficient Diet. A. R. Rich and J. D. Hamilton, Baltimore.—p. 185.

Production of Cirrhosis of Liver by Deficient Diet.—In the course of investigations on the influence of dietary factors on the resistance to infection, Rich and Hamilton observed that animals kept on a particular diet developed cirrhosis of the liver of a character resembling the Laënnec type of human cirrhosis. To their knowledge this is the first time that cirrhosis resembling the Laënnec type has been produced experi-

mentally by an inadequate diet. It had occurred in all of fourteen rabbits kept from twenty-five to 113 days on diets supplemented by various vitamins but lacking in yeast. The evidence indicates that the cirrhosis was due to lack of some factor contained in yeast but different from vitamins B₁, B₂, B₆ and nicotinic acid. Aseities occurred in seven of the animals. Microscopic gallstones developed in the intrahepatic bile ducts in two animals.

Journal of Experimental Medicine, New York

71: 283-422 (March) 1940

- Blood Plasma Protein Production and Utilization: Influence of Amino Acids and of Sterile Abscesses. S. C. Madden, C. A. Finch, W. G. Swabach and G. H. Whipple, Rochester, N. Y.—p. 283.
Influence of Nitrogen Retention on Regeneration of Plasma Proteins. R. L. Holman and J. G. Mebane, Chapel Hill, N. C.—p. 299.
Familial Mammary Tumors in Rabbit: IV. Evolution of Autonomy in Course of Tumor Development as Indicated by Transplantation Experiments. H. S. N. Greene, Princeton, N. J.—p. 305.
Restoration of Lost Organ Tissue: Rate and Degree of Restoration. T. Addis, San Francisco, and W. Lew.—p. 325.
Distinctive Substance Associated with Brown-Pearce Rabbit Carcinoma: I. Presence and Specificity of Substance as Determined by Serum Reactions. J. G. Kidd, New York.—p. 335.
Id.; II. Properties of Substance: Discussion. J. G. Kidd, New York.—p. 351.
Some Constituents of Elementary Bodies of Vaccinia. J. E. Smadel, G. I. Lavin and R. J. Dubos, New York.—p. 373.
Latent Virus in Normal Mice Capable of Producing Pneumonia in Its Natural Host. F. L. Horsfall Jr. and R. G. Hahn, New York.—p. 391.
Passive Immunity in Avian Malaria. R. D. Manwell and F. Goldstein, Syracuse, N. Y.—p. 409.

Missouri State Medical Assn. Journal, St. Louis

37: 93-134 (March) 1940

- Diagnosis and Treatment of Coronary Thrombosis. F. M. Smith, Iowa City.—p. 93.
*Incompatibility Between Congestive Heart Failure and Angina Pectoris. D. Luten and J. H. Wedig, St. Louis.—p. 96.
Seven Hundred and Ninety Consecutive Hysterectomies with Discussion of Technic. H. P. Kuhn and W. F. Kuhn, Kansas City.—p. 98.
Laboratory Aids in Differential Diagnosis of Jaundice. C. F. Kent, Kansas City.—p. 100.
Vitamins in Food. E. L. Miller, Kansas City.—p. 104.
Chemistry of Vitamins and of Vitamin Deficiency Diseases. W. H. Griffith, St. Louis.—p. 105.
Common Instances of Vitamin B Deficiency. R. A. Kinsella, St. Louis.—p. 106.
Vitamin Deficiency and Rickets. J. P. Costello, St. Louis.—p. 107.
Ocular Manifestations of Vitamin Deficiency. A. W. McAlester 3d, Kansas City.—p. 109.
Vitamin Deficiency and Pellagrous Conditions. A. A. Werner, St. Louis.—p. 111.
Use of Vitamins in Chronic Arthritis. R. O. Muethier, St. Louis.—p. 111.

Congestive Heart Failure and Angina Pectoris.—Luten and Wedig suggest that a high degree of cardiac tone may be a part of the "spasmogenic aptitude" characteristic of angina patients and this tone, especially in the presence of a greater or lesser degree of coronary sclerosis, may be the crucial factor in the syndrome of angina pectoris. In certain instances it may be sufficient of itself without concomitant coronary disease. The apparent incompatibility between angina and congestive failure raises the questions whether there is something about the patient with angina pectoris which tends to prevent congestive failures, whether angina pectoris has been increasing and whether there has been a corresponding decrease in congestive failure. The problem of whether angina pectoris tends to prevent heart failure must at present rest on hypothetical considerations. The general impression is that angina pectoris is much more common, but only a vast amount of data carefully assembled over a long period and over a large area would be of value in determining this question. The statistics of the Barnes Hospital for the eleven years of 1927 to 1937 show that, in proportion to the total number of admissions, the number of cases of congestive heart failure tended to rise until the year 1932 and that cases of angina pectoris fluctuated at a more or less constant level. From 1932 to 1937 the proportional number of cases of angina pectoris tended to rise, while cases of heart failure declined rather sharply until 1936. For the years 1936 and 1937 there was an increase in the cases of congestive failure and a decrease (for the year 1937) in angina pectoris. If the compilation of adequate statistics should suggest opposite tendencies in the incidence of angina pectoris and congestive heart failure over and above various

coincidental factors, such facts would be of extreme importance. Competent study of certain antagonistic factors in these syndromes might throw light on the precise mechanism involved in the production of angina pectoris.

Southwestern Medicine, El Paso, Texas

24: 43-80 (Feb.) 1940

- Endaural Fenestration of External Semicircular Canal: Report of 123 Cases. J. Lempert, New York.—p. 43.
Changing Concepts of Tuberculosis During Twenty-Five Years. L. S. Peters, Albuquerque, N. M.—p. 46.
Thirty Years' Observation of Intestinal Obstruction. J. Vance, El Paso, Texas.—p. 48.
Cancer Problems Twenty-Five Years Ago and Now. E. P. Palmer, Phoenix, Ariz.—p. 53.
One Third of a Century of X-Ray Progress. J. W. Cathcart, El Paso, Texas.—p. 56.
Pediatric Progress During the Past Twenty-Five Years. M. K. Wylder, Albuquerque, N. M.—p. 59.
Growing Interest in Heart Disease in the Southwest (Since 1913). G. Werley, El Paso, Texas.—p. 61.

Tennessee State Medical Assn. Journal, Nashville

33: 39-78 (Feb.) 1940

- Effect of Sinus Disease on Eye. M. M. Cullom, Nashville.—p. 39.
Superior Pulmonary Sulcus Tumor. H. B. Gotten, Memphis.—p. 44.
Functional Investigation of Contracted Pelvis (Test of Disproportion). B. Lorincz, Ujpest, Hungary.—p. 48.
Pellagra Due to Cardiospasm: Case Report. F. E. Marsh, Chattanooga.—p. 54.
Asthma in General Practice. T. C. Crowell, Chattanooga.—p. 55.
Acute Rheumatic Fever. J. J. Hobson, Memphis.—p. 60.

Virginia Medical Monthly, Richmond

67: 131-196 (March) 1940

- The Egyptian Building and Its Place in Medicine. W. B. Blanton, Richmond.—p. 131.
Management of Patient with Recurring "Colds," Grip and Influenza. J. R. Hamilton, Nassawadox.—p. 134.
Operability of Gastric Malignancy. C. Moore, Washington, D. C.—p. 138.
Treatment of Eighty-Three Consecutive Cases of Pneumonia in Children, with Special Reference to Modes of Therapy. M. Birdsong, University.—p. 141.
Palliative Treatment of Carcinoma of Esophagus. P. P. Vinson, Richmond.—p. 144.
Investigation and Treatment of Sterility in the Female. E. L. Lowenberg, Norfolk.—p. 146.
Pilonidal Cysts. J. G. Rennie, Bedford.—p. 154.
Sulfapyridine in Treatment of Pneumonia. A. F. Robertson Jr., Staunton.—p. 158.
Treatment of Bacillary Dysentery in Infants. W. E. Keiter, Kingston, N. C.—p. 161.
*Sulfanilamide in Treatment of Gonorrheal Ophthalmia. H. L. Harris, Richlands.—p. 166.
Meningitis Pneumococci: Type III: Case Report. J. E. Diehl, Norfolk.—p. 168.
Subarachnoid Hemorrhage Due to Lues. H. G. Hadley, Washington, D. C.—p. 171.

Sulfanilamide for Gonorrheal Ophthalmia.—Harris states that it took him from three weeks to a month to obtain a negative smear and culture from the eye and to discharge a patient with gonorrheal ophthalmia, when treated with eye irrigations, atropine, ice packs (or warm compresses), local disinfectants, "shoe" therapy, gonococcus antigen and the like. There was a distressing toll of lost or impaired vision, especially among the adult patients. He has treated with sulfanilamide five patients with gonorrheal ophthalmia, two adults and three infants, with fairly successful results. Treatment consisted of the usual routine plus sulfanilamide in regular doses. Careful, frequent warm boric acid irrigations appear to be of particular value, since the pressure of the exudate, when allowed to accumulate, tends to cause corneal ulceration. If ulceration was already present, the usual treatment for that complication was added. The daily dosage of sulfanilamide was approximately 15 grains (1 Gm.) for each 20 pounds (9 Kg.) of body weight. Response to the drug is greater and more rapid during the stages of active tissue change. Sulfanilamide should be used early and intensively and should be continued for from seven to ten days after the first negative eye smear is obtained. The average hospitalization for the five patients was sixteen days. Three were completely cured in an average of less than 9.7 days. The remaining two, averaging 25.5 days in the hospital, were examples of the tragedy of delay in treatment, as the organisms may become drug resistant. Sulfanilamide treatment is warranted because of its economic importance, the ease of administration, absence of complications, rapid improvement and general increase in the comfort of the patient.

FOREIGN

* An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 243-286 (Feb. 17) 1940

Importance of Gastroscopy in Diagnosis of Gastric Diseases in the Army. R. Schindler.—p. 243.

X-Rays in Diagnosis and Treatment of Gas Gangrene. J. F. Brailsford.—p. 247.

*Experiments in Acceleration of Wound Healing. W. G. Waugh.—p. 249.

*The Kahn Test: Simplified Technic. T. E. Osmond.—p. 252.

Primary Lateral Sclerosis of South India: Lathyrism Without Lathyrus. R. L. H. Minchin.—p. 253.

Acceleration of Wound Healing.—Waugh reviews the basic work of Carrel on tissue culture and presents four cases in which this technic was employed. The case histories demonstrate marked acceleration of wound healing under the influence of embryonic tissue extract. The equations and graph curves referable to two of the quoted cases are set out; these confirm the prediction that it is possible to tell how long a wound will take to heal. It is likewise possible to ascertain whether the adoption of various technics of treatment is actually effective in reducing the time of healing.

The Kahn Test.—Osmond's modification of the Kahn test requires a minimum of apparatus, is simple and comparatively foolproof, can be carried out by any one who has had a reasonable amount of practice and is highly specific. The author does not recommend it for testing cerebrospinal fluids. In performing the test two tubes are used for each serum, including positive and negative controls and two for antigen-saline controls. Into the back row one drop and into the front row two drops of suitably diluted and ripened antigen are introduced with the antigen pipet; one volume (0.15 cc.) of each serum to be tested is then added to each pair of tubes, the pipet being rinsed out two or three times in saline solution between any two consecutive serums and the same pipet being used throughout. The rack containing the tubes is shaken for three minutes in the usual way and about 1 cc. of saline solution is added to each tube. Results are read with a hand lens with a magnification of about 6 diameters. For this purpose a slit lamp is most convenient, but any shaded light with a dark background answers the purpose. Results are recorded as positive if both tubes show definite flocculation, negative if neither tube shows any appreciable flocculation, and doubtful if only one tube shows flocculation. If any doubt arises with regard to any given tube it should be compared with the positive, negative and antigen control tubes. The method compares favorably with the Kahn method.

1: 287-332 (Feb. 24) 1940

*Pneumococcal Parotitis. R. T. Payne.—p. 287.

Anaphylaxis Following Administration of Tetanus Toxoid. H. E. Whittingham.—p. 292.

Anaphylaxis After Injection of Tetanus Toxoid: Report of Case. H. J. Parish and C. L. Oakley.—p. 294.

March Fracture—Pied Forcé. F. A. R. Stammers.—p. 295.

Aerophagy. S. W. Smith.—p. 296.

Weak A Reaction Found in Some Cases of Blood Group AB. G. L. Taylor, R. R. Race, Aileen M. Prior and Elizabeth W. Ikin.—p. 297.

Pneumococcal Parotitis.—According to Payne, the pneumococcus is the least frequent cause of pyogenic parotitis. Pneumococcal parotitis presents certain well defined features that have an important bearing on its treatment. The recognition of the bacteriologic type in a case of parotitis is fundamental to its therapy and prognosis. Payne encountered seventeen cases of pneumococcal parotitis, four of which were acute, twelve recurrent and one chronic. Pneumococcal parotitis tends to be of the recurrent type. There is no one single etiologic factor, but it is certain that dental factors are important in leading to disturbances of mastication and parotid function and that the recurrent disease tends to develop during the first and second dentitions or during the first half of adult life. No allergic factor has been proved. There is little evidence of a relationship to other existing pneumococcal infections. No material was available for microscopic study, as none of the cases came to necropsy. Pathologic changes in pneumococcal parotitis are based on a knowledge of other bacteriologic types of parotitis and on the clinical and operative observations in the pneumo-

coccus group. Pneumococcal parotitis is an ascending infection from the buccal cavity, comparable to the other types of pyogenic parotitis. Its main pathologic features do not seriously differ from them. The nature of these changes depends on the acuteness of the process, the degree of duct obstruction and the extent of the invasion of the gland parenchyma. The evidence does not suggest that the acute type of the disease ever gives rise to miliary abscesses scattered throughout the gland such as have been described in cases due to *Staphylococcus aureus*. The pneumococcal cases usually resolve fairly rapidly and leave no trace behind. If rapid resolution does not occur, the process is likely to pass into a recurrent or a chronic phase. In the recurrent cases the secretion in the duct system is thick and tenacious and contains a large amount of mucus. The ducts are of a gross and irregular type. There is a tendency to the formation of deep abscesses in the gland in the course of the acute exacerbations and the clinical evidence suggests that there is a greater degree of gland destruction and fibrosis than is found in the cases caused by *Streptococcus viridans*. Material for bacteriologic examination was obtained by catheterization of the parotid duct and from the parotid abscesses in the cases treated by external drainage. Pneumococci were present in every case. They were often intracellular, either in the leukocytes or in the large polyhedral or tall columnar cells found in the secretion in the recurrent cases. No single strain of pneumococcus is responsible. The important complications are abscess formation within the parotid capsule and external fistula formation. In the acute cases the parotid saliva is thick, mucopurulent and yellowish and does not differ greatly from that found in the *Staphylococcus aureus* cases. In the recurrent cases the duct saliva is profuse, greenish yellow, very thick and tenacious, and it contains a large quantity of mucus. Pus cells and epithelial cells are present. The saliva is in striking contrast to that found in *Streptococcus viridans* cases, in which it is watery and contains large numbers of small blobs of mucus. It is often possible to determine the probable nature of the bacteriologic type of recurrent parotitis on clinical grounds alone. Roentgenograms should be taken in every doubtful case of acute parotitis and in all cases of recurrent or chronic parotitis to exclude the possibility of a calculus, miliary calcification and opacities in the vicinity of the parotid. Treatment should not be undertaken without the fullest investigation. Conservative and local therapy, duct dilation, duct operation, external drainage, gland obliteration, auriculotemporal avulsion, chemotherapy and irradiation must be given consideration. Each case must be considered individually. The dental factor is of paramount importance and no patient is likely to be cured unless the function of chewing is normal. Prognosis as to life is good. In the acute group fulminating cases do not occur, and although recovery is the rule the condition may pass into the recurrent phase. In the recurrent group the exacerbations at times tend to be severe, and there is always a considerable element of uncertainty as to suppuration.

Lancet, London

1: 349-394 (Feb. 24) 1940

Technic for Removing Pulmonary Emboli. A. K. Henry.—p. 349.

Pellagra. H. S. Stannus.—p. 352.

Prevention of Urinary Suppression After Intravascular Hemolysis. S. R. M. Bushby, E. W. Hart, A. Kekwick and L. E. H. Whitby.—p. 355.

Drugs Used in Surgery to Raise Blood Pressure, with Special Reference to Veritol. H. Dodd.—p. 358.

Harelip: New Cupid's-Bow Operation. E. A. Hardy.—p. 361.

Sarcoma of Stomach. A. Hochmann.—p. 362.

Medical Journal of Australia, Sydney

1: 143-178 (Feb. 3) 1940

Brief Survey of Some of the Poliomyelitis Patients Examined During the Victorian Epidemic of 1937-1938. S. Williams.—p. 147.

Acute Anterior Poliomyelitis: Review of 250 Cases in Sydney During the 1937-1938 Epidemic. D. G. Hamilton.—p. 148.

Examination of Olfactory Bulbs in Fatal Cases of Poliomyelitis During the Victorian Epidemic of 1937-1938. E. G. Robertson.—p. 156.

1: 179-214 (Feb. 10) 1940

Inflammatory Conditions of Upper Portion of Respiratory Tract. R. A. R. Green.—p. 179.

Inflammatory Diseases of Upper Portion of Respiratory Tract. G. Halloran.—p. 182.

Notes on American Urology. K. Kirkland.—p. 185.

Archives de Médecine des Enfants, Paris

43: 1-64 (Jan.-Feb.) 1940

- *Splenic Thrombosis in Children. M. Lamy.—p. 5.
Encephalitis in Children During Pneumonia: Two Cases. P. Lereboullet, M. Lelong and J. Guillemin.—p. 26.
Marfan's Disease in a Backward Child: Case. M. Wahl and M. Schachter.—p. 37.
Beriberi of Temperate Climates. J. Comby.—p. 42.

Splenic Thrombosis in Children.—Lamy reports four cases of thrombosis of the splenic vein in children. This syndrome is characterized by hematemesis and melena of sudden occurrence and splenomegaly with the characteristics of a splenomegaly of stasis. It is brought about by a thrombosis or stenosis of the splenic vein, associated eventually with a thrombosis of the portal vein. The resulting splenic stasis is followed by the development of collateral venous circulation reestablishing the flow of the blood through anastomoses with the gastric and esophageal veins. Later these veins dilate, become varicose and finally rupture. As a rule the obstacle is a venous thrombosis, infectious in origin. Vascular stenosis may occur as the result of an extrinsic compression or congenital malformation. As a therapeutic measure the author recommends splenectomy.

Schweizerische medizinische Wochenschrift, Basel

70: 113-132 (Feb. 10) 1940

- Psychotherapy on Small and Large Scale. M. Boss.—p. 113.
*Infectious Mononucleosis with Special Reference to Sternal Puncture. St. J. Leitner.—p. 117.
Histamine Therapy in Functional Anacidity of Acute Psychotic and Nervous Dyspeptic Patients. J. Szabó.—p. 122.
Relation of Malaria to the Nervous System. M. Joelsas.—p. 123.

Infectious Mononucleosis.—Leitner reports two cases of glandular fever accompanied with angina in which the blood picture was carefully analyzed. The first patient, aged 31, had the typical symptoms: pyrexia, angina and edema of the cervical, submandibular and axillary lymph nodes and of the spleen and liver. The second patient, aged 51, had an open bilateral pulmonary tuberculosis, tonsillitis was prominent and the glandular swellings were less marked. Atypical features in the one case were slow recovery (one month), in the other the advanced age of the patient. The blood picture showed a fairly pronounced leukocytosis (as many as 16,000 to 17,000) and an increase in the lymphoid cells (from 50 to 80 per cent) with numerous "atypical" cells. The author distinguishes five kinds of lymphocytes: lymphoblasts, large lymphoidocytes, monocytoïd, those that resemble plasma cells and small lymphocytes. He observed an initial increase of the first four kinds and basophilia in the protoplasm of all five, gradually replaced by azurophil granulation. Sternal puncture did not disclose a bone marrow involvement but a myelocytic condition which is attributed to the interference with cell maturation because of splenic hyperfunction. This splenopathic interference also accounted for the leukopenia and granulocytopenia of the second phase in the evolution of the disease. The Hanganutziu-Deicher agglutination test was positive in the first case. In the tonsillar culture smears of the second case only common gram-positive and gram-negative germs were recovered. The author accepts the view that glandular fever, monocytic angina and infectious mononucleosis constitute a single disease in which differential diagnosis and sternal puncture are diagnostically determinative, especially in cases of acute leukosis and myelopathies.

Pathologica, Genoa

32: 45-88 (Feb. 15) 1940. Partial Index

- Hydronephrosis with Bilateral Hydro-Ureter of Dynamic Nature: Case. A. d'Agata.—p. 45.
*Method for Differentiating Paratyphoid Bacteria A from B by Properties of Either Bacterium in Decoloring Red Azosulfamide Solutions. V. de Francis and V. Fabrizio.—p. 49.

Method for Differentiating Paratyphoid Bacteria A from B.—De Francis and Fabrizio prepared a culture mixture containing 1 part of azosulfamide to 320 parts of the commonly used culture broth. Graduates containing the mixture, with one of the different types of bacteria of the *Salmonella* group already planted on it, were placed in the thermostat at a temperature of 98.6 F. and kept under observation for twelve consecutive days. The mixture became decolorized in from one to three days by B paratyphoid bacteria and some other *Sal-*

monella organisms and in from eight to twelve days by A and C paratyphoid bacteria. Decoloration is not related to processes of oxidation reduction in the mixture. It is due to the growth of bacteria, which is more rapid for bacteria of the B group than for those of the A group. It does not take place in physiologic solution containing emulsions of any type of the mentioned bacteria and azosulfamide at different concentrations. It takes place with considerable delay in peptone water containing the bacteria mentioned and 1 per cent of azosulfamide. The presence of dextrose in the culture mixture of broth-azosulfamide-paratyphoid bacteria inhibits discoloration, whereas the presence of lactose in the mixture stimulates it.

Zeitschrift für klinische Medizin, Berlin

137: 1-242 (Dec. 18) 1939. Partial Index

- *Blood Iodine Studies: Influence of Tobacco Smoke on Blood Iodine Level. K. Gutzeit and G. W. Parade.—p. 1.
Alkali Reserve and Performance: Can Physical Performance Be Measured by Size of Alkali Reserve of Blood? G. W. Parade and H. Otto.—p. 7.
Significance of Decrease of Alkali Reserve Following Physical Effort. G. W. Parade and H. Otto.—p. 10.
Influencing Physical Performance by Artificial Creation of Alkalosis and Acidosis. G. W. Parade and H. Otto.—p. 13.
Fever Treatment of Meningitis and of Its Complications with Pyritol. L. M. Kugelmeier.—p. 60.
Capillary Density in Hepatolienal Diseases and Influence of Splenectomy. H. Franke.—p. 86.

Influence of Tobacco Smoke on Blood Iodine Level.—Gutzeit and Parade examined the influence of smoking on the blood iodine level of five nonsmokers and five habitual smokers at rest in bed. In nonsmokers increase of the blood iodine content was observed after smoking. Increase of the blood iodine quotient, that is, the proportion of organic to inorganic iodine, was likewise observed. The blood iodine content and quotient decreased one hour later and returned to normal in twenty-four hours. An essentially smaller increase of blood iodine content was observed in smokers following smoking which decreased one hour later. The blood iodine quotient either did not increase at all or the increase was considerably smaller than in nonsmokers. Values taken on an empty stomach before smoking revealed that the blood iodine content and quotient were essentially the same in smokers and nonsmokers. It seems to the author that excessive smoking leads to a blunting of the vegetative incretory reactions.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

84: 381-496 (Feb. 3) 1940. Partial Index

- Third Degree Burns. C. Knapper.—p. 382.
*Potassium Chlorate in Treatment of Acute Anterior Poliomyelitis. H. J. Kolk.—p. 388.
Acute Anterior Poliomyelitis in a Children's Home. M. A. Visser.—p. 395.
Epidemiology of Meningococcosis and Acute Anterior Poliomyelitis. M. E. Kulsdom.—p. 398.
Myasthenia Gravis Pseudoparalytica. J. P. Braat.—p. 408.

Potassium Chlorate in Poliomyelitis.—Kolk directs attention to Contat's method of chemotherapy in poliomyelitis. Although this method of oral administration of potassium chlorate is still under investigation, the author thinks that the results he obtained with it justify calling attention to this procedure. The daily dose for each patient is determined on the basis of 100 mg. per kilogram of body weight. Thus for an infant of 4 Kg. the daily dose is 0.4 Gm. whereas for a child of 20 Kg. it is 2 Gm.; the daily dose should not exceed 8 Gm. The drug is administered by mouth every two hours day and night, each individual dose constituting one twelfth of the total daily dose. If the same daily dose is given in larger fractions at less frequent intervals, there is danger of toxic effects becoming manifest. In addition to the oral medication the patients are given nasal instillations of five drops of a solution of potassium chlorate in each nostril four times daily. After two days the oral dose is reduced by omitting one daily and one nocturnal administration, and after six days the chemotherapy is stopped. The author treated some of the cases with potassium chlorate and serum and others with potassium chlorate alone. In all, the potassium chlorate therapy was used in fifty-two cases and the impression was gained that the progress of the paralytic symptoms was arrested and that in the preparalytic cases paralysis was prevented.

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MANAGEMENT OF ADVANCED APPENDICITIS IN CHILDHOOD

WITH OBSERVATIONS ON BLOOD CONCENTRATION
DUE TO PERITONITIS

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The unfortunate controversy over the relative merits of immediate and delayed operation for advanced appendicitis can be settled only by results obtained with one or the other method of treatment. Reports on these results will be misleading if they cover cases not really advanced, for these will decrease the relative number of deaths following either method of treatment. Reports in which the cases are vaguely described as "late" or "with spreading peritonitis" are not convincing. The mere diagnosis of appendicitis, especially in a child, is often difficult, and the diagnosis before operation of the actual stage of the disease is usually impossible. The duration of the disease is no measure of its gravity, nor are the laboratory observations. The discoveries made by physical examination, especially of children, are hard to interpret. Even at operation the surgeon cannot estimate the extent of the peritonitis without, as Ladd says, "he does a very improper operation." We contend that the only indisputable proof of late appendicitis is the condition of the appendix. We have therefore classified as cases of late involvement only those in which there is gangrene plus perforation of the appendix.

In preparing this report we have studied the clinical record of every patient. It covers 656 consecutive cases of appendicitis under treatment in the last seven years in children under 16 years of age. We have divided the cases into three groups:

A. Cases without gangrene or suppuration, 357 cases, no deaths.

B. Cases with gangrene or suppuration but without perforation or with early perforation, 164 cases, no deaths. (In seventeen of these cases no drainage was used, although early perforation was found.) Many patients in this group had the same physical signs and laboratory observations and were apparently just as ill as many patients in group C.

C. Cases with gangrene and perforation or with perforation and abscess, 135 cases, four deaths, 2.9 per cent mortality.

We shall confine our consideration to the 135 cases of group C.

The practice at the Indiana University Clinic has always been to operate immediately for acute appen-

ditis, regardless of the day of the disease and without too much regard for how ill the patient may seem on admission. By immediate operation we do not mean operation without a complete study and preparation of the patient, which may require several hours. The average time between admission and operation for the cases reported was four and one-half hours. Our preparation for operation consists of continuous gastric lavage to relieve tympanites as much as possible, of the injection by vein of physiologic solution of sodium chloride containing 5 per cent dextrose, and in some cases transfusions of blood. Our observation has been that most children in desperate condition on admission are so improved by this treatment that they are able to undergo operation with entire safety. None of our patients died on the table.

Immediate operation was performed on 119 patients of group C and delayed operation for one cause or another on the remaining sixteen patients. Except for this, all patients received the same treatment. The accompanying tables give pertinent statistical data on these cases.

We shall discuss first the 119 cases in which immediate operation was done. That these were really "late" is shown by the following facts:

1. The pathologist found gangrene and perforation of the appendix in 112 of the cases. In the remaining seven cases an abscess was drained without removal of the appendix. No case in which drainage was not done was included in this group. Our practice is not to use drainage except when an abscess or a considerable infected and necrotic tissue which cannot be removed is present. We do not employ it when the appendix is found perforated if there is no well marked extra-appendicular infection.

2. The average time before admission was three days. This is regarded by some writers as the most dangerous time to operate. That we cannot judge the condition of the appendix by the duration of the illness is shown by the observation in ten cases of perforation within twelve hours after onset of symptoms, and in one case within six hours.

In the group of 119 patients on whom immediate operation was done there was one death, a mortality of 0.83 per cent. The child who died survived the operation ninety-four days and was found at autopsy to have general septicemia and ulcerative endocarditis. We attribute this extremely low death rate to the operative technic and to the postoperative treatment, which included care by experienced nurses, constant vigilance to detect complications, and the free use of blood transfusions.

THE OPERATIVE TECHNIC

1. The operations were done by fifteen surgeons of the resident and visiting staffs. All of them had considerable experience in operating for advanced appen-

A study of 135 consecutive cases treated at the James Whitcomb Riley Hospital for Children.

ditis and all used practically the same technic. A proper operation is the most important element in the treatment. It is often hard to do, requires expert assistance and should not be attempted by any but a well trained surgeon.

The following is a summary description of the operative technic used on these patients:

McBurney's incision. Adequate exposure of the operative field with Halsted's appendix retractors and flexible ribbon retractors. Gauze used sparingly and only to facilitate exposure, not to wall off the infected area. Location of appendix and

TABLE 1.—Total Number of Cases in Groups A, B and C and in Subgroups C₁ and C_a

Group		Number of Cases	Percentage Mortality
A	Number with gangrene or suppuration....	357	0.00
B	Gangrene or suppuration without or with only early perforation.....	164	0.00
C	Gangrene and perforation or perforation and abscess, total	135	2.96
C ₁	Gangrene and perforation or perforation and abscess, immediate operation.....	119	0.84
C _a	Gangrene and perforation or perforation and abscess, delayed operation.....	16	18.7
A, B, C—Four deaths		0.609	
B, C —Four deaths		1.33	
C —Four deaths		2.96	
C ₁ —One death		0.84	
C _a —Three deaths		18.7	

evacuation of abscess by suction and gentle sponging. Removal of the appendix, if possible. (It was removed in all but seven of the 119 cases. We believe that this does not, in most cases, materially increase the danger of the operation, while it prevents difficult and often dangerous secondary operations and various complications of recovery.) Ligation of the appendix stump and invagination with a suture of fine catgut, unless the cecum is too friable to permit suturing; in that event, ligation only. Exploration of the pelvis and the lumbar gutter for pus or contaminated fluid. Insertion as indicated of Penrose tubes without gauze, into pelvis and lumbar gutter or as a coffer dam around the head of the cecum. Interposition, if possible, of the great omentum between the drains and the intestine. Loose closure of the wound in the abdominal wall.

We are convinced that a successful outcome in these advanced cases demands the use of abundant drainage. The practice of limiting drainage has been carried too far. It is not necessary to drain a merely contaminated area of peritoneum, but an infected area, especially one enclosing an abscess, must be thoroughly drained and the drains allowed to remain for from seven to nine days, until a good sinus is established. To drain an appendical abscess with one or two cigaret drains which are removed in twenty-four hours is to invite disaster.

In the operation just described, but little intestine except the cecum is exposed or even seen. Infected material is not spread over healthy peritoneal surfaces. The omentum prevents dangerous adhesions and limits the spread of infection.

Postoperative Treatment.—Recognition of Hypoproteinemia: All these children had continuous gastric suction started immediately after operation and continued until regurgitation of bowel contents had ceased. Care was used to prevent the tube from causing post-nasal infection and laryngeal necrosis. In every case a nurse on constant duty kept the tube open and the suction always in action. Codeine and morphine were practically the only drugs used. We regard the method of controlling the body fluids as the most important

part of the postoperative treatment and therefore proceed to discuss its rational basis in some detail. What we here state is a preliminary report on some studies on the effects of peritonitis on the blood.

Peritonitis must be the ultimate cause of the change in the quantity, composition and movements of the body fluids observed in patients with appendicitis. We once thought that these changes were due chiefly to a loss of water and electrolytes by vomiting. We now believe that peritonitis causes other and much more dangerous effects on the body fluids by robbing the blood of its proteins. It is well known that, when damaged by inflammation, the capillary endothelium permits the escape of these substances from the blood stream. It is easily conceivable that in extensive peritonitis the blood may lose enough protein to deprive it of the osmotic pressure necessary to absorb water from the tissues. In this event concentration of the blood and edema of the tissues would occur.

Observation of the beneficial effects of blood transfusion on children with peritonitis led us to adopt the conception just stated. Our use of blood transfusion was purely empirical for a long time. We did not understand their real action till we began to study the effect of cutaneous burns on the blood. Then we chanced to observe in two patients with general peritonitis due to perforation of the colon by cancer the identical blood picture caused by burns, namely hemoconcentration and a great decrease in blood proteins. It can readily be produced by aseptic peritonitis in the experimental animal. The clinical symptoms of extreme blood concentration are startling cyanosis, euphoria, tachycardia, low blood pressure, generalized edema and bubbling rales throughout the lungs. Onset of the trouble is disclosed by slight edema and a little cyanosis. The peritoneum has about the same area as the skin. Just as a total cutaneous burn is always fatal so is a general peritonitis, and from the same cause and with the same symptoms. We do not deny that peritonitis causes a

TABLE 2.—Time Analysis, Groups C₁ and C_a

Onset of Disease Till Admission	
Shortest time	6 hours
Longest time	21 days
Average time	3.7 days
Average Number of Hospital Days	
Group C ₁ , cases without intra-abdominal complications	21.7 days
Group C ₁ , cases with intra-abdominal complications	36.9 days
Group C ₁ , average.....	26.6 days
Group C _a , average.....	35.9 days

Ten cases in group C, appendix found perforated within twelve hours of onset of disease.
Average elapsed time in group C from admission till operation, 4.25 hours.

true toxemia, but we have come to regard this as a secondary cause of the symptoms. It is always well to remember that inflammation favors exudation and not absorption.

It follows from the foregoing that the injudicious administration of water to a patient with widespread peritonitis is dangerous. It dilutes the blood proteins and washes them out of the damaged capillaries of the inflamed peritoneum.

The bad effects of even mild degrees of hypoproteinemia are well known. It deranges the metabolism of the entire body by preventing orderly exchange of

materials between the blood and the tissue cells. It favors the spread of peritonitis because it devitalizes the tissues.

We are convinced that without the free use of blood transfusions many of the desperately ill children in this series would have died, and we strongly advise that in every case of peritonitis the blood proteins be kept above the critical level at which edema develops.

REPORT OF CASES

The following are reports on three patients in the group treated by immediate operation: one on the

TABLE 3.—Complications in Group Operated on Immediately, Group C₁

Total number of cases.....	119
Appendectomy with drainage.....	112
Drainage only	7
Pelvic abscess	13
Fecal fistula	4
Subdiaphragm abscess	3
Septicemia	1
Bacterial endocarditis	1
Bronchopneumonia	3
Empyema	2

patient who died, and two on patients who developed serious complications.

CASE 1.—R. R., aged 15 years, was admitted to the hospital four days after onset of symptoms. The lower part of the abdomen was rigid and tender to palpation. No masses were palpable. Bowel sounds were present. A thrill was palpable over the mitral area.

The temperature was 99.6 F., pulse 140 and respiratory rate 34. The hemoglobin content was 14 Gm., red blood cells numbered 4,690,000 and white blood cells 20,700 with 22 per cent immature and 64 per cent adult cells. Analysis of the urine showed hyaline casts and from 8 to 10 pus cells.

An appendectomy was done with drainage one and one-fourth hours after admission. Postoperative therapy consisted in the use of oxygen, intravenous fluids, continuous gastric lavage and two blood transfusions of 350 cc. each. The temperature ranged from 99 to 100 F. for fifteen days. A right subphrenic abscess was drained on the twenty-sixth hospital day. The course was very satisfactory until the ninety-third day, when there was a sharp rise in the temperature and the child became comatose. Death occurred on the ninety-fourth day.

Autopsy showed a right subphrenic abscess "secondary to acute appendicitis with perforation, bacteremia (*Streptococcus haemolyticus*) and rheumatic valvulitis, healing with insufficiency on which was superimposed acute bacterial mitral endocarditis.

CASE 2.—W. H., aged 8 years, was admitted to the hospital seven days after onset of symptoms. The abdomen was rigid, tender to palpation, moderately distended and tympanitic to percussion. Bowel sounds were absent. No masses were palpable.

The temperature was 101 F., pulse 130 and respiratory rate 32. Examination of the blood showed hemoglobin content 15 Gm., red cells 5,910,000 and white cells 35,800 with 73 per cent immature and 26 per cent adult cells. Analysis of the urine showed many casts and from 5 to 10 pus cells.

The patient was given 1,000 cc. of physiologic solution of sodium chloride with dextrose intravenously. Appendectomy with drainage was done two hours after admission. Postoperative treatment consisted in the use of intravenous fluids with dextrose, continuous gastric lavage, oxygen, codeine and three blood transfusions. An abscess in the right lower quadrant was drained through the original McBurney incision on the forty-sixth day. A pelvic abscess on the left side was drained through a left McBurney incision on the sixtieth day. A fecal fistula developed. The patient was discharged from the hospital on the one hundred and twenty-first day.

The pathologist's diagnosis was acute diffuse suppurative appendicitis, peritonitis and fecalith of the appendix.

The patient was readmitted one year later, at which time a fecal fistula was successfully repaired.

CASE 3.—M. S., aged 11 years, was admitted to the hospital four days after onset of symptoms. The abdomen was moderately distended, with generalized rigidity and tenderness. Bowel sounds were absent. No masses were palpable.

The temperature was 100.4 F., pulse 120 and respiratory rate 22. Examination of the blood showed hemoglobin content 15 Gm., red cells 5,060,000 and white cells 21,450 with 13 per cent immature and 79 per cent adult cells.

An appendectomy was done with drainage one hour after admission. Postoperative therapy consisted in the administration of codeine, oxygen, intravenous fluids, continuous gastric lavage and blood transfusions.

A subphrenic abscess on the right was drained on the forty-fourth day. Resection of a rib and drainage of an empyema cavity on the right was done on the seventy-fifth day.

The pathologist's diagnosis was acute diffuse suppurative appendicitis, possibly due to an appendical obstruction.

The patient was discharged as well on the ninety-fourth hospital day.

Sixteen patients with advanced attacks were treated without immediate operation; in this group there were three deaths, a mortality of 18.7 per cent.

Advocates of delayed operation may contend that to contrast this appalling death rate with the low death rate of the series treated by immediate operation is unfair, because operation was probably delayed on the more desperately ill patients. We fortunately have full clinical data on all sixteen patients treated conservatively and full autopsy reports on the three who died.

CASE 1.—A white girl aged 6 years had onset of symptoms five days prior to admission. The pharynx was injected, the chest clear, the abdomen distended, everywhere tympanitic and tender on pressure. There was no muscle defense. Borborygni were present.

The temperature was 99.4 F., pulse 130 and respiratory rate 30. Red blood cells numbered 5,110,000, white blood cells 13,500 with 63 per cent adult and 18 per cent immature cells. X-ray examination showed the chest to be clear.

Treatment consisted of continuous gastric lavage, intravenous salt and dextrose solution, oxygen therapy in a chamber, three

TABLE 4.—Complications in Group with Delayed Operation, Group C_a

Total number of cases.....	16
Appendectomy with drainage.....	13
No operation	3
Subdiaphragmatic abscess	3
Persistent sinus	2
Empyema	2
Bowel obstruction	1
Pelvic abscess	1
Bronchopneumonia	1

blood transfusions and codeine. The temperature rose sharply on the second hospital day and from this time the child got steadily worse. Cyanosis was noted on the third hospital day with death on the fifth hospital day when the temperature was 106.5 F.

Autopsy showed acute appendicitis with perforation, generalized; fibrinopurulent peritonitis with mixed infection and bilateral hypostatic bronchopneumonia.

The sharp elevation of temperature that occurred the day after admission along with a marked change for the worse in the child's condition suggest a spread of infection which might have been averted by operation.

CASE 2.—A white boy aged 12 years had onset of symptoms four days before admission. Diminished breath sounds and rales were present. There was limited excursion of the lower right

side of the chest. The abdomen was distended and rigid, with generalized tenderness most marked in the right lower quadrant. Bowel sounds were not heard.

The temperature was 104.6 F., respiratory rate 30, pulse 120. Red blood cells numbered 5,430,000 and white blood cells 4,100 with 55 per cent adult and 3 per cent immature cells. The urine was normal and blood culture negative.

Treatment consisted of oxygen, continuous gastric lavage, intravenous salt solution with dextrose and three blood transfusions of 250 cc. each. The child showed temporary improvement on the second and third days when his temperature fell to 103 F. After this his course was downward, with deepening cyanosis and increasing temperature. Death occurred on the fifth day of circulatory collapse.

Autopsy showed strangulation and perforation of the appendix due to torsion and fibrinopurulent peritonitis.

Might not operation done on the second hospital day have prevented a spread of the peritonitis?

CASE 3.—A white girl aged 7 years had onset of symptoms seven days before admission. There were diminished breath sounds and rales over the right lower lung field. The abdomen was distended, rigid and tender to palpation. There was no localization of tenderness. Bowel sounds were absent.

The temperature was 100.8 F., respiratory rate 40 and pulse 120. Red blood cells numbered 4,090,000 and white blood cells 25,600 with 46 per cent adult and 47 per cent immature cells.

The temperature was between 101 and 104 F. for ten days. One hundred and fifty cc. of pus was aspirated from the left pleural cavity on the fourth hospital day. A mass could be palpated in the pelvis on the eighth day of hospitalization.

Therapy consisted in the use of oxygen, constant gastric lavage, intravenous salt solution and dextrose and two blood transfusions. Death occurred on the eleventh hospital day with a temperature of 107 F.

Autopsy showed acute gangrenous appendicitis with perforation, acute generalized peritonitis, a left subphrenic abscess and empyema on the left.

In this case the abdominal symptoms were attributed to pneumonia on admission. It was not until after several days that the nature of the abdominal trouble was diagnosed. It was the opinion of both the pediatricians and the surgeons who saw this patient that death could probably have been averted by operation shortly after admission.

COMMENT

The patients in the delayed group who recovered were in no worse condition on admission than was the average patient in the group operated on immediately. They had more complications and a longer hospital stay. There is no reason to believe that they would not have recovered if they had been operated on immediately. Could the three deaths have been prevented by operation? This, of course, cannot be answered, but it is certain that the result of operation would not have been worse than that of conservative treatment. There is also a strong possibility that it might have stopped a fatal spread of peritonitis. The question here raised is really the only fundamental one in the dispute on the relative merits of early and delayed operation.

THE EXTENT AND SPREAD OF PERITONITIS IN ADVANCED APPENDICITIS

Fortunately widespread, not to mention general, peritonitis is not so common in advanced appendicitis as many writers suppose. A careful study of the clinical histories of the 119 cases of advanced appendicitis treated by immediate operation shows that none of them had general peritonitis. One may safely assume that general pyogenic peritonitis, except in some cases

of the idiopathic variety, is always fatal. One hundred and eighteen of these patients recovered. Autopsy on the one patient who died showed no general peritonitis. Thirteen of the sixteen patients treated by delayed operation recovered and three died with general peritonitis, shown by autopsy. Thus, general peritonitis occurred in only three of the 135 cases of perforation of the appendix.

This study has confirmed our faith in the power of the peritoneum to wall off infection and to prevent the passage of bacteria and toxins into the circulation. Abundant experimental evidence also supports this conviction. General peritonitis occurs only when the peritoneum is surprised by a sudden and immense contamination, as from perforation of the bowel. In appendicitis it nearly always has time to defend itself against a spread of infection, but this defense is occasionally overwhelmed. We have observed this in the presence of one or the other of the following conditions:

1. When a fecalith, impacted at the ceco-appendical junction, causes perforation by pressure necrosis. In this event the bowel contents may be poured directly into the peritoneal cavity.
2. When there is a rupture of peritoneal adhesions around a tense abscess.

Immediate operation is the only possible means of preventing these catastrophes.

SUMMARY AND CONCLUSIONS

There is no reason for the belief that immediate operation for appendicitis, if properly done, spreads infection. On the contrary, the results here reported show that it is the only means of preventing the extension of peritonitis in the more advanced forms of the disease. General peritonitis occurred in only three of the 135 cases of perforation of the appendix, and operation was done in none of these three cases.

There is no doubt that the peritoneum puts up a defense against appendicitis which is in most cases able to overcome the infection or to confine it in the form of an abscess. In either of these events the result of delayed operation will be satisfactory, though it will prolong the period of illness and increase the number and severity of the complications. In case, however, the appendicitis is of one of the dangerous types described, the result of delay will be disastrous. There is no method except operation by which the presence of these progressive forms of the disease can be recognized. Furthermore, since many cases without perforation present the same symptoms as cases with perforation, it is evident that delay of operation will increase the number of perforations and, therefore, the number of deaths.

We have presented evidence for the belief that symptoms of peritonitis attributed to "toxemia" are in great part due to the loss of proteins by the blood and are of the opinion that the low death rate of this group of cases is due to a great extent to the free use of blood transfusions.

Our results do not support the common opinion that appendicitis is more dangerous in childhood than in adult life. Since the diagnosis in childhood is more difficult, it is probable that the disease is usually more advanced at the time of operation. Given a healthy child and a healthy adult both with appendicitis in the same stage and with identical treatment, we believe that the outlook for the child is about the same as that for the adult.

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TREATMENT OF ACUTE SPREADING PERITONITIS FOLLOWING RUPTURED APPENDIX

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In predicting what would happen in the year 1939, Bowers once asserted, 20,000 persons will die of appendicitis at an average age of 27, their most productive period. Fewer than 2,000 will die of appendicitis, but 17,000 will die of peritonitis arising therefrom. Of the 300,000 who will be operated on for unruptured appendicitis, approximately only 1 per cent will die. Of 105,000 persons who will have peritonitis, one out of every six will die; 42,000 will have spreading peritonitis and more than 15,000, or one in three, will die. Over 80 per cent of those who die will die of spreading peritonitis. This situation constitutes a real challenge to the surgeon.

Fitz says "Appendicitis, in spite of being a fashionable and well studied disease for more than fifty years, continues to slap our faces insultingly." Surgeons have encountered a gradually diminishing number of patients with spreading peritonitis, but in the last four years the mortality has not been materially reduced. W. H. Hutchens Jr. calls attention to the fact that, of every twenty children who die, one dies of acute appendicitis. In 1913 the death rate from appendicitis per hundred thousand of population was 6.4 and in 1936 it was 17. In one metropolis 23.5 per hundred thousand perished.

The three great factors in reducing the terrific mortality are, first, the prevention of the administration of laxatives in abdominal pain; second, the early hospitalization of patients suffering with appendicitis; third, the reduction of the mortality from spreading peritonitis. Of 481 patients who had taken laxatives, 477 died as a result of spreading peritonitis. If a patient has taken more than one laxative, he has only one chance in seven to recover. In other words, of those who did receive laxatives one out of fourteen died, and of those who did not receive laxatives only one out of 122 died (Bowers). Patients often commit the error of sending for the castor oil bottle instead of sending for the doctor.

In a hospital in Philadelphia one surgeon had a mortality rate of 20 per cent and another a mortality rate of 3.3 per cent. The mortality from appendicitis decreases with the experience of the surgeon (Bowers).

Sydenham, in the seventeenth century, made the statement that at the commencement of "iliac passion," as appendicitis was then called, the pain was not fixed but that later it settled in one spot and remained there.

The great desideratum is not to treat peritonitis but to prevent it by early operation.

Giertz reduced the mortality rate in purulent peritonitis and operated on from 22.22 to 3.5 per cent of the patients within forty-eight hours. This he accomplished by changing his entire principle of operating, employing small incisions, no unnecessary interference in the abdomen, and primary closure in early cases, as a rule nearly all in the first forty-eight hours.

Even with ileus he departed from his early active measures and depended more on expectant than on active treatment.

Poole reported 757 cases of acute appendicitis with a mortality of forty-eight cases of generalized peritonitis, or 54.15 per cent, whereas with the localized abscesses there was a mortality rate of only 9.37 per cent. He believed that patients in whom abscesses are allowed to develop have a much better prognosis than those operated on during spreading generalized peritonitis. In many, nature will ultimately reduce the surgery indicated to a simple incision and drainage of a localized abscess, which sometimes points into the culdesac and should be opened through the vagina or occasionally the rectum. A patulous anus and hydrorrhea indicate pressure on the rectum prior to perforation.

Le Grand Guerry, who for many years has consistently practiced the deferred operation in delayed cases, cites ninety-four cases of acute gangrenous ruptured appendicitis presenting diffuse peritonitis in which immediate operation was done, with ten deaths, a mortality rate of 10.64 per cent. In contrast, there were 139 cases of acute gangrenous ruptured appendicitis presenting diffuse peritonitis in which treatment was deferred operation with only two deaths, a mortality rate of 1.43 per cent.

TABLE 1.—Appendicitis in Philadelphia Hospitals

Of patients admitted in 24 hours, 1 in 46 died
Of patients admitted in 48 hours, 1 in 21 died
Of patients admitted in 72 hours, 1 in 10 died
If purgative was given..... 1 in 14 died
If no purgative was given..... 1 in 112 died

TABLE 2.—Mortality Rates at Vanderbilt Hospital; Classification According to the Stage of the Disease

	Number of Cases	Number of Deaths	Mortality, per Cent
Acute appendicitis.....	686	1	0.145
Appendical abscess.....	118	5	4.2
Localized peritonitis.....	87	7	8.1
Spreading or generalized peritonitis...	103	35	35.9

By spreading peritonitis we mean cases in which the inflammatory process has spread to involve a large portion of the peritoneal cavity without evidence of localization. Every one is agreed that in cases in which the disease is limited to the appendix immediate operation is the procedure of choice.

Those cases in which there is considerable distention, generalized rigidity and tenderness, vomiting, rapid pulse, elevation of temperature to over 101 F. and no definite mass constitute the type in which the mortality averages 41.2 per cent in some of our best clinics; we designate these cases as generalized peritonitis.

We believe that surgical judgment should take preference over a fixed rule as regards treating patients with appendical peritonitis. This means that the history and physical manifestations of each patient must be carefully considered before one decides on immediate or delayed operation. We also reserve the right to change our plan of treatment if conservative treatment does not bring about the desired results. Many of these patients come from a distance and are not in shape for a surgical operation at the time of admission. Dehydration, acidosis, low blood chlorides, gastric distention and often circulatory collapse are present and,

we believe, should be corrected before the patient is subjected to an operative procedure.

As an example we shall consider the average case of a young adult with peritonitis who is admitted on the fourth or fifth day of his illness. There is a 60 per cent chance that he has had violent purgation and has been vomiting more than the small amount of liquid taken. The temperature is elevated to 103 F. The hippocratic facies is evident; the pulse is between

TABLE 3.—Comparison of Mortality Statistics in University Hospitals

	University of Minnesota (Sterling, L.) 1932-1934		University of Michigan (Coller and Potter) 1931-1933		University of Iowa (Pattison) 1919-1934		Vanderbilt University 1925-1935		Average Mortality, %
	Mor- No. of Cases	tality, %	Mor- No. of Cases	tality, %	Mor- No. of Cases	tality, %	Mor- No. of Cases	tality, %	
Simple acute appendicitis	110	0.99	213	0.46	514	0.37	686	0.15	0.49
Appendical abscess	59	6.7	35	5.7	268	5.6	118	4.2	6.3
Local peritonitis	21	9.5	88	12.5	49	4.2	87	8.1	7.7
General peritonitis	46	43.4	..	...	81	43.2	103	36.9	41.2
Total.....	236	7.5	336	4.1	1,211	3.2	994	5.1	5.5

120 and 140, full and bounding; respirations are thoracic, shallow and rapid, and both diaphragms are elevated. Cyanosis may be present. The abdomen is symmetrically, distended, generally rigid and tender, with maximum tenderness in the right lower quadrant. No mass is felt through the abdomen or rectum. The white blood count will be around 20,000 plus and urinalysis essentially normal except for concentration and a small amount of albumin. To subject this patient to immediate operation plus an anesthetic is a mistake. We would place this patient in Fowler's position and carefully administer 1,000 cc. of 10 per cent dextrose intravenously and 2,000 cc. of physiologic solution of sodium chloride subcutaneously at once. To relieve the distention, a duodenal tube with a small rubber balloon near the tip (Miller-Abbott tube) would be passed into the stomach and connected with a constant suction-siphonage outfit, which can be set up easily even in the home. This tube takes the place of enterostomy, without its danger. Fluids by mouth are then allowed. Morphine in moderate doses should be given at regular intervals, usually every four hours. Rectal tips or tubes are inserted at intervals. Turpentine stipes or warm compresses are helpful in relieving abdominal distention. The patient is given small transfusions of 300 cc. of citrated blood at intervals of two or three days.

OXYGEN

Oxygen does something for the patient in increasing his resistance or it decreases the virulence of the micro-organism. Nearly 100 per cent oxygen, certainly from 95 per cent up, can be given with the Mayo mask in the alveoli of the lungs, whereas the normal amount of oxygen would represent only about 60 per cent in the alveoli. Helium facilitates the delivery of the oxygen in cases of severe involvement.

Spreading peritonitis is due to the bacteria contained in fluid filled with fibrin and leukocytes. The adjacent serous surfaces become adherent and grown together

by fibrinous adhesions. The omentum—the policeman of the peritoneum—at once goes to the affected area as a protection. There is a limiting wall formed which encapsulates the micro-organism and tends to protect the outlying peritoneum from invasion. This results in adynamic ileus and is the reason why purgation is so often death dealing. Purgation is like the torpedo of a submarine which destroys its victim. Can you imagine a more perfect setup for protection than the distended intestine agglutinated by universal fibrinous adhesions to encapsulate the micro-organisms and then destroy them by the chemistry of the peritoneum? According to Love, this occurs in from 65 to 70 per cent of cases. Occasionally in the remaining 25 or 30 per cent suppuration occurs instead of spontaneous subsidence of the infection in the development of an abscess. In about 5 per cent of cases the infection tends to extend. Under those circumstances in an extremely sick patient it is quite inadvisable to intervene and break up the adhesions which are trying to wall it in. It is better to wait until the signs of inflammation have subsided. Thus one avoids shock of the initial rupture that would save the patient from the danger of dissemination by operation until such time as his own immunity has developed. When the peritonitis subsides, the appendix can be removed. In about 25 per cent of patients the process will become localized and the abscess can be opened and the pus drained by aspiration only, with a very good chance of success. Unless the appendix is easily seen, it should not be sought for. Unfortunately, the majority of patients are admitted to the hospital when the condition is "too early for the late operation and too late for the early operation."

Hunter and Carr in 1932 reported a death rate for appendical peritonitis at Ann Arbor, Mich., of 58 per cent. Since then conservative treatment has been initiated in cases of peritonitis and in those of abscess and the mortality has fallen to 8.6 per cent and 5.6 per cent respectively.

TABLE 4.—Results of Immediate Operation in Generalized Peritonitis

Author	Number of Cases	Mortality, per Cent
Potter and Coller *.....	XX	52
Wright.....	41 (1935)	45.4
Pattison.....	81	43.2
Stanton.....	113	42
Wright (3-6 hours' delay).....	60 (1935)	11.7
Guerry *.....	91	10.4
Delayed Operation		
Hawk.....	10	60
Spertling.....	46	43.4
A. J. Ochsner.....	33 (1901)	30
Kirtley and Daniels *.....	314	16.3
Potter and Coller *.....	XX	8.6
Guerry *.....	125	1.4

* Includes also localized peritonitis and appendical abscess.

Sworn and Fitzgibbon quoted reports on 457 patients admitted to the hospital with a palpable mass. In 189 cases immediate operation yielded a mortality of 7.9 per cent. In 290 cases, in which conservative treatment and no operation was carried out, the mortality rate was 0.68 per cent. Sir James Barrie, of London, says that when he was house surgeon at St. Bartholomew's Hospital thirty-one patients with typhlitis, as appendicitis was then called, were admitted. There was only one death in this series.

APPENDICITIS—HAGGARD AND KIRTLEY

1845

THE USE OF ALCOHOL INTRAVENOUSLY IN
SEVERE PERITONITIS

In Bellevue Hospital, Mueller employed alcohol intravenously in a series of 2,000 infusions, originally to prevent any reaction but later as a sedative in all sorts of surgical cases in which the patient was very ill, and "gave euphoria and drowsiness as substitutes for misery and apprehension." Many patients, unable to eat, were supplied with two and three times the amount of easily assimilable carbohydrate. A 5 per cent concentration of alcohol, shaken well in 2,000 cc. of saline or dextrose-saline solution, was employed. About 100 cc. of alcohol was given in twenty-four hours. This does not have to be sterilized. It is the equivalent of carbohydrate, supplying the body with energy and, like carbohydrate, can prepare tissue protein. It has no ill effect when given intravenously, such as acidosis, headache, vomiting and nausea. Nearly twice as much caloric value is available as for ordinary dextrose. It eliminates morphine. Vasodilating alcohol is produced. It is eliminated through perspiration.

OUTLINE FOR CONSERVATIVE TREATMENT
OF DELAYED APPENDICITIS

1. Nothing by mouth.
2. Wangenstein tube or Miller-Abbott tube for intestinal distention.
3. From 5,000 to 8,000 cc. of 5 per cent or 10 per cent dextrose and saline solution daily, so that the urinary output must be 1,500 cc. in twenty-four hours.
4. The intestinal canal at entire and complete rest from five to seven days.
5. Small transfusions.
6. Oxygen mask.
7. Fowler's position.
8. Hot fomentations or an ice bag to the abdomen.

The proper management of these cases requires the utmost skill and taxes the experience and judgment of the surgeon to the limit (Coller and Potter). The fact that appendicitis is much more deadly in the young and at the other extreme of life also raises the question as to whether deferred operation would be as applicable to them as to the middle aged person.

An early mass denotes an appendix wrapped in omentum, lying superficially and easily palpated. It is a safe case because one can sometimes remove the appendix wrapped in its little coverlet of omentum, without unfolding it, by amputating the gangrenous appendix if it is necessary to unwrap the gangrenous appendix it is so surcharged with the healing element that the results are beneficial in restoring the patient's body chemistry and fluids.

Patients on the fatal third and fifth days would stand operation poorly because of the trauma to the peritoneum before the patient's immunity gets started. The peritoneum develops greater protective powers and repair in the absence of trauma.

Morphine increases the tone of the intestine and prevents adynamic ileus, which is really the cause of most of the deaths. The deferred operation is not intended to evade operation but simply to get the patient in proper condition. The entire inflammatory process may disappear by resolution. This occurred in sixty of Gardner's seventy-seven cases under conservative treatment. Among the patients who entered with inflammatory mass or had it develop under this conservative treatment, the mass entirely disappeared in 53.78 per cent (Gardner).

Love reports 68 per cent of 341 cases as having completely subsided under a conservative regimen.

If the temperature is not subsiding after a week, or the mass is increasing in size, or if pain becomes conspicuous after four or five days of treatment has elapsed, operation should be considered.

If the temperature rises and pain continues and the abdominal signs do not recede, conservative treatment will have to be abandoned as operation will have to become immediate in case the peritoneal tension should continue to progress or if an abscess should rupture into the peritoneal cavity.

TABLE 5.—Analysis of 3,746 Cases of Appendicitis at
Haggard Clinic

	Cases	Deaths	Mortality, per Cent
Acute appendicitis.....	2,007	12	0.54
Localized peritonitis or abscess.....	417	24	5.7
Generalized peritonitis.....	189	47	24.8
Total (1915-1938).....	2,613	83	3.1
Previously reported (1900-1915).....	1,133	29	2.5
Entire group.....	3,746	112	2.9

Should resolution occur, the appendix should be removed at the end of eight weeks. Gardner found that in 126 cases in which operation was delayed the mortality rate was 8.7 per cent, as contrasted with 18 per cent in immediate operation. Adams reports a mortality rate of 4.2 per cent among 214 patients treated by the delayed operation as against 13.2 per cent of 553 patients treated by immediate operation.

Coller and his colleagues found that the average surgical patient loses about 2,000 cc. of water by vaporization from the skin and lungs; 1,500 cc. of urinary output is needed for normal renal functioning. Thus 3,500 cc. is the basic daily requirement and in dehydration and vomiting they advise adding enough fluid to equal 6 per cent of the patient's body weight. Enough saline solution should be given to replace that lost from the stomach, and the rest of the fluid should be 5 or 10 per cent dextrose in distilled water. For a man weighing 80 Kg., 8,300 cc. would be required. It is obvious that 2 or 3 liters is entirely inadequate. Too much saline solution would lead to salt edema. Under this regimen the average patient with peritonitis will improve, and we would expect the process to undergo resolution or result in one or possibly more well localized abscesses which can be safely drained on the twelfth or fourteenth day. Should the patient not show improvement following correction of acidosis and dehydration, operation may be considered, and he is now in better shape to withstand an anesthetic and operation than before, and only a few hours or days have been sacrificed.

Conditions found at autopsy indicate that death occurs in peritonitis from two main causes: (1) intestinal obstruction and (2) circulatory collapse or shock.¹ Both of these may be combated by the use of duodenal decompression. The advantages of the Miller-Abbott tube over the shorter Levine tube are obvious. With the bolus-like balloon being propelled far down into the small intestine, gas is removed both in front of and behind the balloon. In some instances the tube has passed into the rectum. It has all the advantages of an enterostomy with none of its dangers and is an important agent either before or after operation.

1. Wright, Thew; Aaron, A. H.; Regan, J. S., and Milch, Elmer: The Management of Patients with Diffuse Peritonitis, J. A. M. A. 112: 1285 (Sept. 30) 1939.

The most serious mistake the doctor makes is in thinking that the patient, although ill with appendicitis, is hardly ill enough to be operated on. No case, provided it is appendicitis, is too mild for operation.

It is difficult to say which is worse, the early purgation treatment or the late surgical treatment. If both were omitted and the early operation could be substituted, the appendicitis massacre would be a thing of the past. When the early, safe period for prompt operation has been frittered away, conservative treatment often is most judicious.

King Edward VII was operated on by Sir Frederick Treves on the eighth day, drainage was established and the appendix was not even removed. If he had been operated on on the third or fourth day he might have perished. As it was, he lived eight years to reign in then Merrie England. If such a procedure is good enough for a king, it is good enough for your patient.

Lord Moynihan says that, if no aperient has been given, starvation, opium and absolute rest may enable a deliberate and easier choice to be taken in favor either of operation or of delay, until resolution or suppuration occurs.

The Ochsner-Sherren treatment was devised to get over the danger period in operating on the third, fourth and fifth day until adequate preparation could be had and an effort made for resolution or abscess.

Abscesses that occur before the patient is brought in on the twelfth or fourteenth day practically all heal by operation, whereas, if operation had been performed in the period of the zenith of the attack—the third, fourth or fifth day—there would have been a very high death rate.

The older surgeons have seen many cases undergo resolution. I have repeatedly seen patients with abscesses decline an operation and undergo complete resolution. At the present time, however, if an attack is at all severe no physician would allow it to go through without operation. They must not be allowed to die "without benefit of clergy."

Surgeons should refrain from always removing the appendix in a walled off abscess. If it is not easily accessible, drainage is better than breaking through in less than ten minutes the walls that nature has been ten days in manufacturing.

The use of the suction pump in localized abscesses, no matter how circumscribed or how diffuse, should be all that is necessary. It is infinitely better than gauze sponges, as it does no harm and does not insult and traumatize the endothelium.

If an enterolith is found in the abscess cavity (our sponge nurse has been taught to look for them) the whole thing is over and the appendix, as a rule, gives no further trouble. If, however, an appendix is retained with an enterolith in it, it will give rise to a sinus or recurrent attacks until removed.

The real emergency is in the first twenty-four hours, not a midnight operation on the third or fourth day without any preparation or study of the case.

So-called delayed treatment in delayed appendicitis is a remedy to get rid of the danger of operating when nature can take better care of the infection which is so prone to disseminate the infection. In spreading peritonitis one accomplishes by operation the trauma that so often kills the patient. Surgery should not be asked to bear the brunt of delay, purgation, neglect and mismanagement. In many instances, delay in ruptured appendicitis is the part of surgical wisdom.

SAFETY FACTORS IN ETHYLENE ANESTHESIA

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CEDAR RAPIDS, IOWA

Ethylene (C_2H_4) was first generated by Ingenhousz in 1779 and its anesthetic property was demonstrated in laboratory animals by Luessem in 1885, but it remained for Luckhardt and Carter¹ to carry out conclusive experimentation on the physiologic properties of ethylene gas and to report 106 cases in April 1923, the first group in which surgical operations were performed under ethylene anesthesia on the human subject, at the Presbyterian Hospital, Chicago. Thus ethylene has been in use as a general surgical anesthetic for only sixteen years.

In August 1924 the senior author² instituted the use of ethylene as an anesthetic agent in the Robert Packer Hospital because neither ether nor nitrous oxide, previously used, has been entirely satisfactory as the usual anesthetic for general surgical cases. In this clinic no routine anesthetic is used, but an attempt is made to choose the ideal one for the individual case. That this has been successful, in part at least, is evidenced by the fact that many anesthetic agents are used at present in the work of the clinic: Ether following ethylene induction is used for tonsillectomies and operations about the nose and throat; avertin with amylene hydrate is used occasionally as a basal anesthetic; nitrous oxide is used in the presence of the electrocautery or actual cautery, especially for clamp and cautery removal of hemorrhoids and for orthopedic manipulation requiring the use of the fluoroscope; in minor and some major surgical procedures one of the intravenous anesthetics, pentothal sodium or evipal soluble, is frequently utilized; in major general surgery in addition to ethylene, spinal anesthesia is frequently used in low abdominal, perineal or urologic procedures, and since its introduction cyclopropane has been used in varied types of abdominal operations.

Ethylene has been employed in this clinic for fifteen years. At first it was used cautiously and only occasionally, but gradually, because it proved its adaptability to most surgical cases, it has become the anesthetic of choice for the majority of operations. During this fifteen year period from Aug. 1, 1924, to the present, ethylene has been given as the main anesthetic or for induction supplemented by ether anesthesia for 35,500 patients. The enthusiasm of the senior author for ethylene has been justified by this anesthetic, which combines relative safety with marked muscular relaxation. The opportunity is taken at this time, when the relative merits and demerits of ethylene and cyclopropane are being so actively discussed in surgical groups, to report this series of cases and to pay tribute to ethylene gas, which has not received the wide, general usage it warrants but which has done yeoman service as an anesthetic in this clinic for a period of fifteen years.

1. Luckhardt, A. B., and Carter, J. B.: Ethylene as a Gas Anesthetic: Preliminary Communication, *J. A. M. A.* 80:1440 (May 19) 1923; *Physiological Effects of Ethylene, a New Gas Anesthetic*, *J. A. M. A.* 80:765 (March 17) 1923.

2. Guthrie, Donald: *The Safeties of Ethylene Anesthesia*, editorial, *Surg., Gynec. & Obst.* 43:703, 1926; *Ethylene and Oxygen Anesthesia in General Surgery*, *Anesth. & Analg.* 5:214 (Aug.) 1926.

ADVANTAGES

For general use we believe that ethylene is superior to ether because of its more rapid, smooth and pleasant induction and because it is attended with much less postoperative nausea and vomiting and less distention, thus insuring a more prompt and less turbulent return to consciousness. The disadvantages of nitrous oxide—cyanosis and inadequate relaxation—for general surgery are well known. The patient has easier, more regular respirations and no more nausea under ethylene than under nitrous oxide. Because of the quiet, regular respirations and minimal secretion, ethylene is an excellent anesthetic for thyroid surgery, where any respiratory difficulty may be attributed to operative manipulation. Ethylene is an excellent anesthetic to be used for nephritic, diabetic or cardiovascular patients because it has little effect on blood pressure. Cyanosis is absent under the usual 15 to 20 per cent oxygen mixtures. Loss of body fluids is minimal, the dryness of skin under ethylene being very noticeable in contrast to the drenched ether patient. This conservation of body fluids protects the alkali reserve and is a factor of importance in the prevention of postoperative shock. From our limited experience with cyclopropane in 400 cases it would seem that its advantages over ethylene are principally of degree. Relaxation is a little more complete, induction and recovery time is shorter and there is less postoperative vomiting. The most noticeable difference at operation is the very red color of the blood due to the high oxygen content of cyclopropane-oxygen anesthesia.

DISADVANTAGES

The disadvantages of ethylene are few and more theoretical than real. Some authors have contended that oozing from the wound is more marked with ethylene than with other anesthetics. The surgeons in this clinic are inclined to agree with Luckhardt and Lewis³ that "perhaps" this is true, but it is not excessive and is of no importance during the operation or in the postoperative condition of the wound and is certainly less than with cyclopropane. The sweet sorghum odor of ethylene is not even noticed by the operating room personnel, and patients do not object to it. By far the most important objection to the use of ethylene has been its overpublicized explosibility. This factor is real in concentrations of from 22 to 40 per cent according to the United States Bureau of Mines, and several explosions occurred early in the use of ethylene as an anesthetic.

That explosions occur infrequently is evidenced by various large composite reports in the literature: Salzer reported 425,000 ethylene anesthetics with an occurrence of but ten explosions including one death. Herb⁴ reported 1,005,375 ethylene anesthetics in 1933, administered by 220 anesthetists with twenty explosions resulting in one injury and five deaths. In 1930 Henderson reported from questionnaires that, of 288 hospitals, one reported an ethylene explosion and death of the patient when the cautery was used on a carbuncle of the neck, and nine others reported explosions with minor injuries to the anesthetists. A questionnaire sent to seventy-five hospitals by Hugh Cabot revealed over 146,000 ethylene anesthetics administered with one explosion when the cautery was applied to an abscessed lung and one other case in which the cautery ignited

the ethylene and induced a slight burn. Two other explosions were reported, as well as one with nitrous oxide-oxygen and ether. These were all in the apparatus after the anesthesia had been completed. Another questionnaire returned by fifty-eight prominent surgeons included 163,000 ethylene anesthetics with eighteen explosions. Five were serious and one fatal.

That cyclopropane is explosive has been underemphasized until very recently, when several fatal explosions in excellent clinics have forcibly drawn the attention of the surgical world to this fact. In 1937 Eversole, Sise and Woodbridge⁵ called attention to the work of Buckman and Wardell⁶ on the explosibility of cyclopropane. Their work made it evident "that the average anesthetic mixture (about 15 per cent) is well within the explosive range. In this respect it (cyclopropane) is quite different from ethylene, for with that gas most anesthetic mixtures (containing probably 80 to 85 per cent ethylene) are above the explosive range." This fact has been appreciated by Lundy, who in a recent communication⁷ made the observation that, whereas cyclopropane is always in the explosive range in anesthetic doses, ethylene is within the inflammable but not the explosive range unless diluted by the addition of other gases. It is obvious, then, that the danger of explosions with cyclopropane is always present whereas with ethylene it becomes possible only when the machine is flushed with oxygen or other gases are added which dilute the ethylene below the usual anesthetic concentration.

The explosibility of ethylene-oxygen is no greater than that of ether or nitrous oxide-oxygen-ether. Livingstone, Shank and Engel⁸ have recently published an article of which we will briefly summarize the data that are in point. These authors reviewed a total of 102 anesthetic fires and explosions garnered from the current literature and personal communications. These were exclusive of the cases included in the various composite series mentioned. From these 102 fires and explosions there resulted forty-eight injuries and twenty-seven deaths. Ether or ether-oxygen accounted for thirty-four fires or explosions with twelve injuries and eight deaths. Nitrous oxide-oxygen-ether accounted for fourteen fires or explosions causing fourteen injuries and four deaths. Fourteen fires or explosions occurred in anesthetics of ethylene-oxygen; in these fourteen with ethylene there were eight injuries and four deaths. Cyclopropane accounted for eleven fires and explosions with one injury and five deaths. Those remaining were associated with a number of other gases.

Through Dr. Paul Wood,⁹ secretary of the American Society of Anesthetics, and Drs. Everett A. Tyler and Barnett A. Greene, chairman and secretary respectively of the society's Subcommittee on Fires and Explosions, we have been supplied with a list of 192 anesthetic fires and explosions. These data represent but a part of the material secured by the committee in its recent investigations, which are soon to be published; but it is comprehensive enough, we believe, to emphasize the dangers of fires and explosions which attend the use of all inhalation anesthetics. This group includes at least part of the cases referred to earlier in this paper.

5. Eversole, U. H.; Sise, L. F., and Woodbridge, P. D.: *The Clinical Use of Cyclopropane*, Surg., Gynec. & Obst. **64**: 156 (Feb.) 1937.

6. Buckman, M. A., and Wardell, C. H., Jr.: *Bulletin 112, Research Laboratory, Ohio Chemical and Manufacturing Company*.

7. Lundy, J. S.: *Personal communication to the senior author in May 1939*.

8. Livingstone, Huberta; Shank, I., and Engel, Rose: *Fire and Explosion Hazard with Anesthetic Agents, Hospitals* **13**: 36 (July) 1939.

9. Wood, Paul, and Tyler, E. A.: *Personal communications to the authors from June to September 1939*.

3. Luckhardt, A. R., and Lewis, Dean: *Clinical Experience with Ethylene-Oxygen Anesthesia*, J. A. M. A. **81**: 1851 (Dec. 1) 1923.

4. Herb, Isabella C.: *The Present Status of Ethylene*, J. A. M. A. **101**: 1716 (Nov. 25) 1933.

Many of these reported accidents were due to gross carelessness and negligence and were caused by complete disregard of the safeguards which should be used in the administration of inhalation anesthetics. For example:

Thirty-nine of the accidents were due to suction-pressure machine sparks in switch or motor of machines of many different manufacturers.

Eight were due to the use of fluoroscopes.

Thirteen were due to the use of high frequency machines.

Twenty-two were due to the use of the actual cautery.

Five were due to matches or cigarettes.

Seven were due to open flames.

Four were due to endoscopic instruments.

Six explosions were due to sudden release of tank pressure into anesthetic machines not bearing safety valves.

Five were caused by a combustible agent used for preparation of the surgical field.

Two were due to oxygen-oil combustions.

One was due to a faulty wall plug.

Fourteen resulted from miscellaneous causes, some of them too vaguely described to be classified in the previous group:

One was caused by rapid release of a large tank of gas with ignition of ethylene at the valve outlet.

Six involved ether-air or oxygen ignited by sparks in some form of electrical apparatus.

Five involved ether-air or oxygen ignited by sparks due to faulty wiring.

Two involved ether-air, with the cause not stated.

Sixty-six accidents were due to static sparks; these will be carefully analyzed.

The anesthetic service and the surgical departments of all hospital staffs who appreciate the dangers of fires and explosions in the use of anesthesia and who are using all known safeguards for their prevention should center their attention on those accidents due to the static spark and redouble their efforts to prevent its occurrence. Therefore we shall analyze only those accidents due to the static spark in this illuminating report of the American Society of Anesthetists. We note that sixty-six cases are reported:

Five cases involved ether-air with no injuries to patient or anesthetist.

Six cases involved ether-oxygen and caused severe burns of one patient and slight injuries to two anesthetists and one bystander.

Fifteen cases involved ether-nitrous oxide-oxygen and caused death of one patient by lung injury, bilateral lung injury in another patient, who recovered, and death of an anesthetist from burns; four patients suffered contused eyelids and other slight facial injury.

One case involved ethylene-air with no injuries.

One case involved ethylene-nitrous oxide; the anesthetist was killed by bursting of the tank and an attendant was maimed.

Twenty-four cases involved ethylene-oxygen and caused four patients to die of lung injury (three of these were also receiving ether); three anesthetists were moderately seriously injured, and three anesthetists and two bystanders were slightly injured.

Fourteen cases involved cyclopropane-oxygen and caused death of six patients by lung injury (two of these were also receiving ether-nitrous oxide); one patient possibly suffered lung injury, dying eight days later of advanced pulmonary tuberculosis and pneumonia; two patients suffered lung injuries but recovered; three anesthetists and several bystanders were slightly injured.

It is reasonable to assume that the ratio of accidents occurring in the use of ethylene and in the use of cyclopropane is greatly in favor of ethylene, because ethylene has been used extensively for years while cyclopropane has just recently been employed and is used in but few hospitals. In other words, the preponderance in the use of ethylene anesthesia, with twenty-six explosions reported over cyclopropane anesthesia, with fourteen

explosions reported, is very great. Notice also that there were but three patient deaths and one anesthetist death among twenty-six explosions with ethylene, a mortality of 15.3 per cent, and there were seven deaths in fourteen explosions of cyclopropane, or a 50 per cent mortality. Explosions from cyclopropane, therefore, are much more dangerous to the patient than are those due to dilute ethylene.

Barnett A. Greene, secretary of the subcommittee, says in a recent communication: "The frequency and gravity of these accidents have been underestimated. We have encountered a definite tendency toward the public dramatization of explosions involving ethylene or cyclopropane, especially if caused by the supposedly 'mysterious' static electricity. There is an opposite trend to minimize, overlook or condone explosions involving ether or those caused by the unwise use of electrical apparatus."

The publication of these investigations by the Committee on Fires and Explosions will be read with great interest.

In this clinic no explosions have occurred in more than 35,500 ethylene administrations. Nevertheless, the fact that explosions may occur makes it mandatory that surgeons who use ethylene exercise constant "diligence and vigilance," as Lundy¹⁰ has demanded. The precautions necessary with the use of ethylene are now well established. Ethylene-oxygen is highly explosive under high pressure. This factor may be eliminated with the use of modern gas machines exemplified by the Connell machines used in this clinic, which mix the gases under low pressure. Low pressure ethylene-oxygen may be ignited, however, under certain circumstances. The source of ignition may be (a) a metal spark, (b) an open flame or (c) a static electrical discharge. Bishop,¹¹ of this clinic, has pointed out that with an anesthetic apparatus which properly screens the gases and the use of nonsparking metal parts a metal spark is very improbable. The risk of using the cautery, open flame and the like in the operating room is obvious and contraindicated when ethylene is used, although actually the danger from even such an obvious source of ignition is minimal at a distance of from 10 to 12 inches from the mask, owing to diffusion of the gas. The main hazard is ignition of the gases by a static spark within the apparatus. However, it has been demonstrated that a static spark is not likely to be generated in an atmosphere with a humidity of 56 per cent or more and cannot accumulate on a moist rubber surface. In this clinic, to avoid possible explosions several obvious precautions based on the foregoing facts have been taken. No cautery, actual or electrical, is used in a room where ethylene is being given. The operating rooms are equipped exclusively with nonsparking mercury light switches. No cigarettes are smoked on the operating floor except in the dressing rooms, far from the gases. Modern anesthetic machines are used which are grounded and, through the mask and conduction tubes, ground the patient. Recently the Horton intercoupler unit has been used in this clinic to reduce further the possibility of static spark formation. The masks and rubber tubes are washed with water before being used, and a little water is kept in the breathing bags. Because it has been demonstrated that rubbing of silk against silk generates considerable static potential, our anesthetists are requested to wear

10. Lundy, J. S.: Ethylene as an Anesthetic, *Hosp. Pract.* 8: 376, 1928.

11. Bishop, H. E.: Eliminating the Dangers of Ethylene, *M.D. Hosp.* 39: 39 (Aug.) 1932.

only cotton hose and underclothing when on duty. Most important, the humidity is kept always above 56 per cent and the operating rooms are air conditioned and well ventilated to carry off diffused gases.

Connell,¹² in a recent address to the American Society of Anesthetists, advised that:

Anesthetic apparatus should be constructed proof against intermixture of gases under cylinder pressure. It should be constructed of sparkless metals, be tight and with central spill valve. It should be regarded as the container of explosive mixture and not subject to nearby open flame or electric apparatus when in use and should be emptied and washed free of combustive residue when not in use. Conduit connections, metal to metal, should not be disturbed or reconnected while apparatus is in use. The apparatus should not be covered while idle nor should dry hot blankets be carried past it when in use. It should be intercoupled electrically to patient and anesthetist before starting anesthesia, this intercoupling to be continuous until the mixture is washed out. This intercoupling should be remote from the gas spillage, it should be of high resistance and preferably sparkless in its own connection. Dry rubber interior should not be tolerated and preferably rubber should be treated with electrolyte to become slightly conductive.

The general surgical operations performed under ethylene anesthesia in the past three years have been reviewed, and the pulmonary complications, as well as the occurrence of phlebitis and severe surgical shock,

Complications Occurring Among 4,634 Patients Operated on Under Ethylene Anesthesia

Complications	Number	Per Cent
Pneumonia	9	0.19
Pulmonary embolus	12 (4 fatal)	0.26
Pulmonary infarctions	6	0.13
Atelectasis	17	0.37
Bronchitis-pleuritis	9	0.19
Tracheobronchitis	1	0.02
Phlebitis	11	0.23
Severe surgical shock.....	4	0.08

have been noted. During this period of time 4,634 of these patients have had ethylene. The complications occurring in this group, in the development of which the anesthetic might reasonably be assumed to have played a part, are presented in the accompanying table.

A recent report by Rovenstine and Taylor¹³ of atelectasis and pneumonia occurring under nitrous oxide, ether, ethylene, procaine hydrochloride, avertin with amylene hydrate and cyclopropane anesthetics during a two year period gave the incidence of these two major pulmonary complications as 0.5 and 0.6 per cent respectively. The incidence reported here for atelectasis and pneumonia following ethylene compares favorably with these figures. The incidence of pulmonary infarction, pulmonary embolus and bronchitis is low. These figures are much lower than those usually reported for pulmonary complications of ether. It is difficult to evaluate the role of anesthesia in the development of phlebitis. This is likewise true in surgical shock because severely shocked patients have usually undergone a long, arduous operation as well as a prolonged anesthesia. Both conditions occurred infrequently in this series.

MORTALITY

Earlier in this paper it was stated that ethylene is a safe anesthetic; that this has been true in the work of this clinic is evidenced by the paucity of cases in which ethylene might be considered as a possible cause of immediate death. In the past fifteen years five patients

12. Connell, Karl; Hazard of Explosion from the Point of the Manufacture of Gas Machines, read before the American Society of Anesthetists, Inc., April 14, 1939.
13. Rovenstine, E. A. and Taylor, I. B.; Postoperative Respiratory Complications, *Am. J. M. Sc.* 191: 807 (June) 1936.

who have had ethylene in whole or in part as the anesthetic agent have died during the course of the operation or immediately afterward before being returned to the room. Brief case reports follow:

CASE 1.—A white youth aged 17 years, admitted to the hospital Feb. 20, 1936, with the history and signs of appendicitis, was acutely ill but in good general condition. The heart was considered organically sound. The blood pressure was 140 systolic, 80 diastolic.

A diagnosis of gangrenous appendicitis with perforation was made and immediate operation was performed under ethylene anesthesia. A perforated appendix was found with free fluid in the abdominal cavity. Appendectomy was performed, without difficulty or visceral trauma, in thirty-five minutes. The general condition of the patient was considered good throughout the operation. About five minutes after the completion of the operation the anesthetist noticed that the patient had stopped breathing. On examination of the chest it was found that the heart had ceased to beat. All efforts at resuscitation were without success.

CASE 2.—A white man aged 54, admitted to the hospital on April 16, 1936, with a history of long standing indigestion, postprandial pain for one and one half years and gas distention, nausea and vomiting for two months, had vomited about a quart of clotted red blood¹ and was too faint and weak to get up. On examination he was found to be very pale and there was tenderness in the epigastrium. The subsequent erythrocyte count was 1,420,000 and the hemoglobin level 24 per cent. A history and the signs of asthma were noted.

The diagnosis was bleeding duodenal ulcer with marked secondary anemia and bronchial asthma. The patient was treated conservatively for thirty-four days with several transfusions, when his condition was considered satisfactory for operation. At this time the lungs were clear and the heart regular, with sounds a bit distant but of fair quality and with no murmurs. The blood pressure was 110 systolic, 70 diastolic. The erythrocyte count had risen to 3,640,000 and the hemoglobin level to 58 per cent. Under ethylene anesthesia a gastric resection was attempted. After the duodenum had been mobilized and divided and as the stomach was being mobilized, the patient suddenly stopped breathing; on examination there was found to be no heart action. All attempts at resuscitation were to no avail. Postmortem examination on the table showed extensive coronary calcification and areas of occlusion. The heart muscle was flabby and very pale in many areas.

These two deaths would have to be considered as possibly due to ethylene, although the second patient showed evidence of coronary artery disease on post-mortem examination.

CASE 3.—A white man aged 70, seen in the clinic Oct. 8, 1934, had a history of soreness and progressive swelling in the left breast. He gave also a history of dyspnea on exertion and precordial pain for one year. On examination the left breast was found to be enlarged and lumpy. The heart showed evidence of myocarditis and the patient had general arteriosclerosis. Surgical treatment was advised because of the possibility of a malignant tumor of the breast, and the patient was admitted to the hospital five days later for surgical therapy. The operation was performed under ethylene anesthesia. About five minutes after the operation was completed the patient awakened and talked. He was being wheeled from the operating room when he stiffened and gave a gasp, and the heart action and respirations ceased. There was no response to attempted resuscitation. The breast condition proved to be chronic mastitis. It was considered extremely likely that this death was due to cerebral embolism in which the anesthetic agent played little part.

The two remaining immediate deaths occurred in patients undergoing thyroidectomy for toxic adenomatous goiters. Both of these patients were given 70 mg. of avertin with amylene hydrate as a basal anesthetic, followed by ethylene. One of these patients was the

subject of a previous report by Guthrie and Hughes¹⁴ as having an avertin death and the other was likewise considered as dying of this anesthetic because death occurred just after the skin incision had been made and before much ethylene had been administered.

Two deaths in this group must in fairness be considered as possibly due to ethylene. This constitutes a mortality of two in over 35,500 ethylene administrations, or a mortality of one in 17,750 ethylene anesthetics or inductions.

Veal and Van Werden¹⁵ have reported an immediate mortality of thirty among 33,800 patients subjected to spinal anesthesia. Foss and Schwalm¹⁶ reported in 1933 a composite series of 4,000 operations, one half of which were performed under ether and the other half under spinal anesthesia. In these groups ten table deaths occurred under ether and one table death occurred under spinal anesthesia. Foss and Bush¹⁷ have expanded this study to include 10,000 consecutive operations and bring the figures up to date. This recent study includes 5,000 operations under spinal anesthesia and 5,000 under general anesthesia. In this series the additional 3,000 cases of spinal anesthesia included two table deaths, bringing this occurrence to three in 5,000 cases. The additional 3,000 general anesthetics included two table deaths, thus bringing the figure to twelve table deaths in 5,000 general anesthetics. It is noteworthy that ten table deaths occurred in 2,000 ether administrations, whereas only two additional immediate deaths occurred in 3,000 additional general anesthetics in which cyclopropane-ether was the anesthetic agent. Graham and Brown¹⁸ analyzed 1,918 cases in which spinal anesthesia was given. In this group 202 hospital deaths occurred; three deaths occurred with the patient on the table and two shortly after return to the ward which might have been contributed to by the anesthetic. Without critical analysis of these deaths or of the five table deaths in this series, it may be said that in unselected cases sudden deaths in the operating room are less frequent under ethylene than under spinal anesthesia and much less frequent than under ether anesthesia.

CONCLUSIONS

Based on this experience in which this gas was used in whole or in part as the anesthetic agent, it is our belief that ethylene is an excellent anesthetic for general surgical use.

The induction of ethylene is rapid, smooth and more pleasant than with most common inhalation anesthetics. The respirations are quiet and regular, the skin is dry and the color good while the patient is under the anesthetic. Muscular relaxation is excellent and adequate for all general or orthopedic surgical needs. The effect of the anesthetic on blood pressure is slight. Postoperative nausea, vomiting and distention are minimal.

For general usage we believe that ethylene is an anesthetic agent superior to ether, nitrous oxide or spinal anesthetics and, from the standpoint of explosibility, safer than cyclopropane.

The disadvantages of ethylene are few. The main objection to its use has been its explosibility. This

objection has been emphasized out of proportion to its merit. There have been no explosions in our experience with this anesthetic.

The avoidance of explosions requires strict adherence to a few rules. No flame must be allowed in the operating room. Static sparks must be avoided by the use of a modern gas machine and the maintenance of a humidity of 56 per cent or higher. The use of an intercoupling unit is advocated.

Pulmonary complications and postoperative phlebitis or severe shock have been infrequent among the patients operated on under ethylene anesthesia in this series. The incidence has been lower than reported for other anesthetic agents.

Five immediate deaths occurred in this series. Two of them may have been due to ethylene. This is an immediate mortality of one in 17,750 administrations.

It is our opinion that ethylene is an excellent anesthetic agent for general surgical use and that an unjust prejudice exists in the minds of the surgical profession with respect to its widely heralded disadvantages.

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THE EFFECT OF PROLONGED ADMINISTRATION OF ESTROGEN

ON THE UTERUS AND THE ANTERIOR PITUITARY OF HUMAN BEINGS

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Gardner, Allen, Smith and Strong¹ succeeded in producing in mice a large carcinoma of the cervix with metastases in the lumbar lymphatic glands by treating the animals for 319 days with 10,500 international units of estradiol benzoate. This tumor could be successfully transplanted to male and female mice of the same strain and in this strain it developed rapidly without any further treatment with estrogen. Even previously some authors had reported certain individual cases in which the administration of estrogen had produced cervical carcinomas in mice.² As a matter of fact, we cannot draw conclusions concerning the human subject from results obtained in mice, but just the same the knowledge of the experimental production of carcinoma of the uterus by the use of estrogen, even if this has happened but rarely, must alarm the clinician; and all the more so since similar results have been obtained in monkeys. Overholser and Allen³ observed a very suspicious lesion of the cervix in a castrated *Macacus rhesus* (monkey 11) which had received 2,802½ international units of estrogen and 10.7 cc. of progesterone during fifty-one days. They handed the preparation over to Dr. James Ewing of Cornell University, who diagnosed the initial stage of a carcinoma. Engle and Smith⁴ treated four *Macacus* monkeys for from sixty to 170 days with a total of from 33,400 to 95,400 international units. The changes of the cervix uteri were in the direction of a metaplastic development of

14. Guthrie, Donald, and Hughes, F. A., Jr.: The Dangers of Avertin Anesthesia, *Tr. South. S. A.* 49: 431, 1937.

15. Veal, J. R., and Van Werden, B. deK.: Mortality of Spinal Anesthesia, *Am. J. Surg.* 34: 606 (Dec.) 1936.

16. Foss, H. L., and Schwalm, L. J.: Relative Merits of Spinal and Ether Anesthesia, *J. A. M. A.* 101: 1711 (Nov. 25) 1933.

17. Foss, H. L., and Bush, L. F.: The Present Status of Spinal Anesthesia, *Ann. Surg.* 110: 881 (Nov.) 1939.

18. Graham, R. R., and Brown, W. E.: Spinal Anesthesia in Abdominal Surgery, *Ann. Surg.* 110: 863 (Nov.) 1939.

1. Gardner, W. U.; Allen, Edgar, Smith, G. M., and Strong, L. C.: Carcinoma of the Cervix of Mice Receiving Estrogens, *J. A. M. A.* 110: 1182 (April 9) 1938.

2. Loeb, Leo; Burns, E. L.; Suntzeff, V., and Moskop, Marian: *Proc. Soc. Exper. Biol. & Med.* 35: 320 (Nov.) 1936. Perry, Isabella H., *ibid.* 35: 325 (Nov.) 1936.

3. Overholser, M. D., and Allen, Edgar: *Proc. Soc. Exper. Biol. & Med.* 30: 1322 (June) 1933.

4. Engle, E. T., and Smith, P. E.: *Anat. Rec.* 61: 471 (March 25) 1935.

squamous epithelium in the cervical glands, but no suggestions of carcinoma. Zuckermann⁵ treated monkeys for even a longer period, namely up to 365 days, with a total of 265,000 international units of estrone. He found erosions of the cervix but no carcinomatous changes.

INVESTIGATIONS IN HUMAN BEINGS

The question of whether estrogen can exert a carcinogenic effect is of extreme importance to the clinician. If there is really a danger of producing a carcinoma in man through the administration of estrogen our use of this substance should be restricted to the utmost.

Although for many years I have frequently used estrogen therapeutically, I have never encountered any changes of the uterus which I could suspect of having resulted from the alleged carcinogenic action of the substance. We treated chiefly amenorrheic women, who received the usual dose of from 200,000 to 400,000 international units of estrone or estradiol benzoate. In other cases I used far larger doses, particularly as I had observed that some types of sterility could be remedied by such large doses; in all these cases there appeared no clinical changes of the uterus suggestive of carcinoma. I am going to describe two cases:

CASE 1.—N., aged 23, sterile, had menstruated regularly, the flow lasting for from four to five days. A diagnostic curettage performed before menstruation showed that the mucous membrane was in the premenstrual stage with normal glycogen content. From the fourth to the twenty-seventh day of the cycle the patient received 50,000 international units of estradiol benzoate (one ampule of dimenformone benzoate) daily, a total dosage of 1,200,000 international units of estradiol benzoate. On the twenty-eighth day of the cycle, biopsy of the cervix was performed and several strips were removed from the uterine mucous membrane. Examination revealed that the portio was perfectly smooth; there were no erosions. The cervical mucosa showed a striking abundance of glands. The lumens of the glands were very wide and in certain portions cystically enlarged in such a way that under low power some of the glands occupied the entire microscopic field. Some of these glands were lined by tall columnar epithelium with flattened nuclei (goblet cells), in some places forming papillae. In the lumens of the glands there were mucus-like plugs without cellular elements and only rarely desquamated cells.

More or less abundant cervical glands are seen in every case of erosion of the portio, but not in such quantities as were seen in this preparation. It can be assumed that the hormonal stimulus brought about the increase in the glands.

In places where there were no glands we observed a large number of thick-walled blood vessels with hypertrophied media and numerous dilated veins.

The uterine mucosa showed the picture of the intermenstruum. It did not correspond to the twenty-eighth but rather to the twelfth day of the menstrual cycle.

Best's stain for glycogen was negative.

Quantitative examination of the glycogen content of the uterine mucosa⁶ revealed 0.05 per cent (the physiologic content on the twenty-eighth day of the cycle is from 0.3 to 0.6 per cent).

CASE 2.—Another patient, treated the same way, gave the same results; therefore the description of this case can be omitted.

These two observations demonstrate that the administration of 1,200,000 international units of estradiol benzoate—from three to four times as much as the dose used in treating amenorrhea—produces an inhibition of the development of the uterine mucosa in women and

moreover increases the number of the mucous glands of the cervix but does not induce any changes of a carcinomatous nature.

CASE 3.—A woman aged 26 had had both breasts removed because of a bilateral mammary carcinoma. She⁷ was given 0.6 Gm. of estradiol benzoate (6,000,000 international units) during a period of sixty days, being injected daily with two ampules of dimenformone (100,000 international units) intramuscularly. On admission there were local recurrences, pleural metastases (pleural exudate) and vertebral and cutaneous metastases (lymphangitis carcinomatosa). In addition, at autopsy metastases were found in the liver and ovary. In this desperate case we tried to inhibit the growth of the carcinoma by very large doses of estrogens.

I was induced to attempt this treatment for the following reasons: 1. Large doses of estrogen inhibit (as has been demonstrated by previous investigations⁸) the release of the gonadotropic hormone into the blood stream from the anterior pituitary, so that the ovarian function ceases. As is well known, castration favorably influences mammary carcinoma and so we tried to attain this end similarly by "hormonal castration." 2. It has been reported in the literature⁹ that the growth hormone of the anterior pituitary hastens tumor growth. If rats which have been inoculated with Jensen sarcoma are hypophysectomized, the tumors do not grow. If Evan's growth hormone is now administered to the animals, tumor growth continues. Large doses of estrogen are able experimentally to produce dwarfing¹⁰ by inhibiting the release of the growth hormone of the anterior pituitary into the blood stream. We made the attempt to inhibit the growth of the carcinoma by eliminating the pituitary growth hormone in human beings as well.

It may be that the doses administered (10 mg. of estradiol benzoate daily) were insufficient. In any case no clinically perceptible inhibition of the carcinomatous process could be observed.

Estrogenic hormone is able to disturb the normal ovarian cycle. The period of menstruation can be postponed; thus in women artificial amenorrhea results.¹¹ This event occurred in our case too. The last menstruation had been on Nov. 29, 1937. Estrogenic treatment began on December 12; it was therefore the fourteenth day of the cycle. The expected menstruation did not take place December 26 but only on January 19, having thus been postponed for twenty-five days. While the patient previously had bled for four days at this period there was only slight bleeding of one day's duration. The next bleeding took place early in the morning of Feb. 20, 1938, and lasted for several hours only. On this day the patient died. At autopsy we were able to obtain the genital organs, the hypophysis and the other endocrine glands and the following facts were noted:¹¹

Uterus.—On gross examination the vagina was normal. The external os of the uterus was round. The uterine portio showed a large circular, chiefly papillary, erosion. The mucous membrane of the cervical canal was bright red. The plicae palmatae were particularly well marked. Above the internal uterine os there was a pale zone 0.5 cm. wide (corresponding to the lowest uterine segment "dehnungszone"). This pale zone was in striking contrast to the dark red mucous membrane of the corpus uteri. The latter had a very unusual appearance.

7. Dr. Halberstaedler transferred the patient to us for treatment.

8. Zondek, Bernhard: *Lancet* 1: 10 (Jan. 4), 2: 842 (Oct. 10) 1936; *Folia Clin. Orient.* 1: 1 (May) 1937.

9. Reiss, M.; Druekrey, H., and Hochwald, A.: *Ztschr. f. exper. Med.* 90: 408 (Nos. 3-4) 1935.

10. Zondek, Bernhard: *Hormone des Ovariums und des Hypophysenhinterlappens*, ed. 2, Berlin, Julius Springer, 1935, pp. 387, 499, 507; *Wien. Klin. Wochenschr.* 49: 455 (April 10) 1936.

11. Prof. Dr. Getzova, director of the pathologic institute of the Hadassah University Hospital, Jerusalem, made the anatomic examinations.

5. Zuckermann, Solly: *Lancet* 1: 435 (Feb. 20) 1937.

6. The results of the chemical analyses of the uterine mucosa for its glycogen content will be reported elsewhere.

There were netlike whitish formations on the surface. On submerging the specimen into water we noticed a great number of fluctuant masses looking like fine polypi.

Microscopic examination revealed that the glands were slightly enlarged and not tortuous at the level of the internal orifice of the oviduct. The rest of the mucous membrane of the corpus, however, showed markedly distended glands, which were inflated in a balloon-like fashion projecting toward the lumen and frequently torn; there were the areas which corresponded to the fluctuant masses which had been seen on gross examination. That the tears were spontaneous ones was proved by the fact that even the glands of the deeper layers of the mucous membrane occasionally showed here and there such ruptures. The epithelium of the glands was cylindric. In some places, however, it was flattened in an endothelial manner, and such areas were found in the normal as well as in the distended glands. The lumens of the glands were for the most part empty, but now and then they were found to contain a considerable number of erythrocytes. The mucous membrane of the corpus showed striking hyperemia. Here the blood vessels were markedly engorged. They were thin walled, lined only by endothelium and without adventitia. In some portions no endothelial nuclei were present and the wall was demarcated merely by a delicate line of plasma. The picture suggested that particularly in this area a rather active diapedesis had taken place, since erythrocytes were found in the adjacent stroma. On the other hand, erythrocytes could be found in the adjacent stroma in areas where the endothelium had abundant nuclei. There were slight interstitial hemorrhages, but nowhere was a break of continuity of the vessel walls to be detected. In the immediate neighborhood of the ruptured glands already mentioned vessels with entirely intact endothelium were seen. The hemorrhage which had occurred on the day of death could not have been due to the rupture of the superficial capillaries but probably was due to (a) diapedesis and (b) exudation of blood from the ruptured glands.

Thus the uterine mucosa showed a peculiar picture of glandular cystic hyperplasia in which the glands which were ruptured in many places projected in a balloon-like fashion toward the lumen. There was a considerable degree of hyperemia and hemorrhage. Toward the lower uterine segment ("dehnungszone") the mucous membrane suddenly became quite thin; the glands were no longer inflated and nowhere torn. The blood vessels were narrow and did not contain erythrocytes. Thus the anemic thin mucosa of this zone contrasted to the thick, hyperemic mucosa of the corpus.

In the cervix the orifices and all the lumens of the glands were distended. The lining epithelium was of tall columnar type but there was no hyperemia.

The cervical mucous membrane extended on the vaginal surface of the uterine portio. Bordering the squamous epithelium (remainder of the vaginal surface of the portio) the stroma was infiltrated with lymphocytes and plasma cells. The picture was that of a common papillary erosion of the portio. The rather anemic mucous membrane of the cervix became hyperemic at the area of erosion. Within the squamous epithelium of the portio (remainder of the vaginal epithelium of the portio) there were, beginning near the site of the erosion, some scattered ridges of epithelium extending into the stroma, the latter with dilated blood vessels. Toward the vagina, small epithelial buds extended into the depth though fairly distant from one another. In this area there was hyperemia and the stroma was slightly infiltrated with round cells. The epithelial projections in some areas were pediculated, and it appeared that some of them were separated from their origin. There was nowhere evidence of carcinoma.

Ovary.—There were no primitive follicles, no ripening follicles, no fresh corpus luteum, but numerous corpora albicantia with remainders of lutein cells. In both ovaries there were extremely small metastases of the primary cancer of the breast.

*Pituitary Gland.*¹²—The gland weighed 710 mg. (the average weight, according to Erdheim-Stumme, for the age group of 21 to 30 for nulliparas being 595 mg.). The gland was fixed in Orth's fluid and embedded in paraffin. On cross section

through the anterior lobe a discrete pale nodular area was seen with the naked eye delineated by a delicate reddish line. Exact measurement revealed that this area occupied half of the anterior lobe.

On microscopic examination the posterior lobe failed to show any considerable deviation from the normal. The lower and anterior part of the anterior lobe were almost normal as to cellular structure, although in some places the eosinophilic cells preponderated. In the upper posterior zone the circular area which we had already observed on gross examination appeared to consist almost exclusively of eosinophilic cells. (Azan-stain, modified according to Peterson, was used.) This area was limited anteriorly by a wide band of fibrous tissue with abundant blood vessels. In the other portions the eosinophilic nodule was defined by a sudden change of the cellular character without, however, any limitation by a fibrous capsule. The anatomic diagnosis was circumscribed hyperplasia (according to another terminology "adenoma") of the eosinophilic cells.

The Other Ductless Glands.—The thyroid and parathyroid gland, the adrenals and the pancreas were normal.

COMMENT

As has been demonstrated by former investigations,¹⁰ the normal ovarian cycle in women can be inhibited by the administration of estrogen. Menstruation can be postponed from seven to seventy days and thus artificial amenorrhea can be produced. The uterine mucous membrane does not develop further than the intermenstrual stage. The progestational transformation (second generative phase) is skipped. The dose of estrogen necessary for postponing menstruation is at least 70,000 international units. The substance brings about inhibition by blocking the gonadotropic secretion of the anterior pituitary. Thereby the development of corpus luteum and, consequently, the production of progesterone are impaired. If enormous doses of estrogen are given, the corpus luteum formation can be absolutely prevented. This event is demonstrated by the third case reported. In the ovaries there were neither ripening follicles nor any fresh corpus luteum and they therefore appeared similar to senile ovaries. Consequently we are able by the protracted administration of large doses of estrogen to produce functional castration in women—in other words, hormonal sterilization. Our patient, however, had small uterine hemorrhages twice in spite of the elimination of the ovarian function. This had been brought about in the following way: As a rule the uterine mucosa remains thin and does not develop further than the intermenstrual stage. Large doses of estrogen, more than 600,000 international units, can induce glandular cystic hyperplasia and hyperemia owing to the local effect of the substance. This is particularly evident in case 3. The hemorrhage probably occurred by diapedesis and by the oozing of blood from the ruptured glands. It was therefore a hemorrhage from a glandular-cystic hyperplastic mucosa, not, however, a menstrual hemorrhage.

Even macroscopically the uterine mucosa showed a peculiar appearance such as I have never seen previously. Particularly characteristic were the fine, villous papillary formations, which fluctuated in water and thus gave a very peculiar appearance to the mucosa. These villous formations were due to glands dilated in a balloon-like fashion and frequently torn toward the lumen. There is no doubt that these changes in the uterine mucosa were caused by the enormous chronic local irritation of such extremely large doses of estrogen (6,000,000 international units during sixty days). Such doses, as a matter of fact, have not been used up to the present in man as far as I can judge from the literature.

12. Dr. Henry Ungar made the anatomic examination of the hypophysis.

The mucous membrane of the lower uterine segment ("dehnungszone") was not in the least influenced, in contrast to the mucous membrane of the corpus uteri.

The striking enlargement of the cervical glands observed in all three cases probably was due to the treatment.

In the two first cases (twenty-eight days' treatment with 1,400,000 international units of estradiol benzoate) the portio did not show any erosion. In the third case (6,000,000 international units during sixty days) a large, partly papillary erosion of the portio developed during the period of treatment. Within the area of the erosion, however, no appearances indicating carcinomatous changes could be found. Even after such a protracted treatment with large doses of estrogen, therefore we could not find carcinomatous changes in the uterus in spite of the fact that we were observing a carcinomatous patient who had a predisposition toward malignant formation. The continuous administration of large doses, however, cannot be considered harmless, since a large erosion of the portio developed during the period of treatment. Care should be taken if previous to treatment an erosion has already been present; for theoretically it is conceivable in any case that the chronic hormonal stimulus might give rise to the development of malignant formation on the basis of an erosion. For this reason it is necessary not to perform hormonal treatment continuously but to allow intervals without treatment to intervene, a fact which has already been pointed out by Zuckermann based on his experiments in monkeys. The treatment with estrogen, therefore, should not, as it sometimes happens, be continued for months.

The anterior pituitary in case 3 contained a large eosinophilic area occupying half of the entire anterior lobe. Such formations at present are called pituitary adenomas in the literature, although they are not defined by a fibrous capsule. In our case the fibrous border was only partial. We should designate such formations as "circumscribed hyperplasia." The question shall be discussed as to whether, in our case, the large eosinophilic "adenoma" was a consequence of the chronic treatment with estrogen or whether it was an accidental accessory finding. Costello¹³ systematically examined 1,000 hypophysial glands from the autopsy material of the Mayo Clinic and found that 225 of these glands contained one or more, namely a total of 265 adenomas. These were classified as follows: chromophobic 140 (82.8 per cent), eosinophilic twenty (7.5 per cent), basophilic seventy-two (27.2 per cent) and mixed types thirty-three (12.4 per cent). Among 1,000 hypophysial glands there were, therefore, no more than twenty eosinophilic adenomas (2 per cent). The eosinophilic adenoma in itself occurs much less frequently than the basophilic adenoma, although in the human hypophysis eosinophilic cells (37 per cent) are much more frequently found than basophilic cells (11 per cent) as reported by Rasmussen.¹⁴ Close¹⁵ reported that the incidence of pituitary adenomas was approximately 10 per cent in a series of routine post-mortem examinations (280 cases) but that it ran as high as 44 per cent in those cases in which there was associated carcinoma in other glands. In two cases of mammary carcinoma and in one case of ovarian carcinoma Close did not find any adenoma of the pituitary, which is important for the estimation of our case. The

adenomas consisted in the vast majority of cases of chromophobic cells. There were small eosinophilic adenomas in only two (among thirty-nine cases). As shown by the investigation of Karlefors, Berblinger and Muth the carcinoma if it induces any changes at all brings about an increase in the number of chromophobic cells, sometimes with transformation into pregnancy cells. The spontaneously occurring pituitary adenomas need not give rise to clinical symptoms and so Costello calls them "subclinical adenoma."

It can therefore scarcely be proved with certainty whether or not anatomic observations in the anterior pituitary are merely accidental. I believe that in our case the eosinophilic "adenoma" was a consequence of the chronic administration of estrogen for the following reasons:

1. We were considering an eosinophilic adenoma, which is rarely encountered.

2. It was a very large adenoma occupying half of the entire anterior lobe; such large eosinophilic adenomas rarely occur spontaneously.

Though the protracted treatment with estrogen inhibits the release of the growth hormone, the pituitary showed immense increase in the number of eosinophilic cells.¹⁶ The fact, moreover, is of interest in that the other endocrine glands, particularly the thyroid gland, were not affected in any way whatever. The endocrine glands which could be examined were normal.

SUMMARY

1. The normal ovarian cycle in women can be inhibited by estrogen. Menstruation can be postponed for from seven to seventy days and artificial amenorrhea can be produced in this way. The dose necessary for bringing about this effect is at least 70,000 international units.

2. The inhibition of menstruation is brought about in such a fashion that the estrogen blocks the gonadotropic secretion of the anterior pituitary, whereby the development of the corpus luteum and progesterone production are prevented. Consequently the uterine mucosa cannot develop, the progestational transformation is omitted and glycogen is not produced (inhibition of the second generative phase).

3. Still larger doses of estrogen (more than 600,000 international units) are able to cause the uterine mucosa to react with glandular cystic hyperplasia owing to the local effect of the hormone.

4. Protracted administration of immense doses (6,000,000 international units over sixty days) prevents the ripening of the follicle as well as corpus luteum formation, so that the ovaries appear to be those of an old woman (inhibition of the first and second generative phase). Estrogen, therefore, is able to induce functional castration or, in other words, hormonal sterilization.

5. The cervical glands react to estrogen with marked enlargement.

6. The administration of 1,400,000 international units of estradiol benzoate during the course of twenty-eight days does not bring about any changes of the portio. The administration of 6,000,000 international units during sixty days induced the formation of a large, partly papillary, erosion of the portio, which demonstrated that an erosion of the portio can be caused by hormonal irritation.

13. Costello, R. T.: *Am. J. Path.* 12:205 (March) 1936.

14. Rasmussen, A. T.: *Am. J. Path.* 9:459-471 (July) 1933.

15. Close, H. G.: *Lancet* 1:732 (April 7) 1934.

16. The pituitary of rats reacts with formation of chromophobic adenomas after several months' treatment with estrogen.

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7. Even extremely large doses of estrogen did not give rise to carcinomatous changes of the uterus.
8. The reaction of the anterior pituitary to the administration of 6,000,000 international units of estradiol benzoate is that of marked increase in the number of the eosinophilic cells. An eosinophilic hyperplasia ("adenoma") was found occupying half of the entire anterior lobe.
9. The other endocrine glands showed no deviation from the normal.

ALLERGY INDUCED BY IMMUNIZATION WITH TETANUS TOXOID

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A toxoid for the active immunization of human beings against tetanus infection has been developed within the past few years and its efficiency as a producer of tetanus antitoxin has been well established. It has followed directly in the wake of the development of diphtheria toxoid, and today a refined alum precipitated formaldehyde detoxified tetanus standard-ized under rules of the National Institute of Health is commercially available. It is not within the scope of this paper to discuss the aspects of its development or its antitoxin producing capacity, all of which may be found in such recent papers, with references, as those of Bergey and Etris,¹ Jones and Moss,² Hall,³ Gold⁴ and Cowles.⁵

The advantages inherent in the active immunization with tetanus toxoid are that the serum antitoxin titer may be raised to a level higher than that afforded by the usual prophylactic dose of antitoxin (horse serum), that it is more lasting, that it can be rapidly reelevated by a toxoid injection in an emergency and, perhaps most important of all, that it avoids the very real dangers of reaction or sensitization incident to serum administration.

In the articles just referred to attention has been centered on the degree, the rapidity of development and the duration of the specifically protective antitetanic antibody. While some mention is made of untoward (allergic) reactions, they seem to be regarded lightly. A committee of the Surgical Society of Paris⁶ investigated the work of Ramon and Zoeller and reported that "the antitetanic vaccine (anatoxin of the Pasteur Institute) is harmless, not being followed by any local or general reaction." Bergey and Etris⁷ (thirty-four

cases) included among points of special importance: the use of alum precipitated toxoid "the absence of either local or general reaction . . . except the slight local reaction in occasional individuals who are highly sensitive to the proteins contained in culture media." Jones and Moss² described two fairly severe local reactions in their fifty-eight cases, one after a first and the other after a second injection, but these were both fifth and sixth day reactions. Hall³ reported that he started with 140 patients but that only forty-seven received a second injection, which, as will be seen, is the important point. Details were not given, but persons had urticarial reactions to the second dose of toxoid (not alum precipitated). Epinephrine injections were given. The time of onset of the reactions was stated. Cowles⁵ did not mention any constitutional reactions among the twenty-one students receiving at least two injections. Gold⁴ in his latest summary says: "In our entire experience covering over 1,000 injections given in the last five years we have encountered only one systemic reaction. This occurred in a nonatopic subject who developed hives one half hour after the second injection of alum precipitated toxoid."

It will be observed that the three urticarial reactions noted occurred after the second dose and had the general characteristics of an allergic reaction in persons in whom a sensitization has been induced by a first dose given several weeks previously. No particular study seems to have been made of these cases. It is our purpose in this paper to record a fairly severe constitutional reaction in a patient to the second immunizing dose of alum precipitated tetanus toxoid, to present evidence as to the allergic nature of the reaction and the ingredient in the preparation responsible for the reaction, and to suggest precautions that seem to be indicated when toxoid is given to patients for immunizing purposes.

REPORT OF CASE

G. C., a man aged 44, complained chiefly of asthma, which began at the age of 23. His father had hay fever. A daughter had asthma. He had no unusual contacts and there were no indications of food or drug idiosyncrasy. Asthma started mildly while he was in a base hospital in France suffering from the effects of a gas attack. It had continued since with more or less severity and with slightly increasing disability but had always been controllable. It was usually worse at home. Tests showed positive reactions to house dust, cat dander and horse serum. On account of the latter reaction he was given 0.5 cc. of a commercial alum precipitated tetanus toxoid on June 24, 1938. No local or general reactions resulted from this injection. October 19 he was given a second dose of 0.5 cc. of the same tetanus toxoid. In about ten minutes he noticed a sense of surface warmth and itching, first in the palms, then gradually broke out with general urticaria. The face began to swell and he shortly breathed. The arm at the site of the injection became markedly swollen from the shoulder to the elbow. He responded to 0.5 cc. of epinephrine given subcutaneously but later needed a second dose. In four hours' time he felt generally better, but the swelling of the face and arm and some general itching remained for forty-eight hours. October 28 a scratch test on the forearm with the same tetanus toxoid diluted 1:10 gave a typical positive wheal with erythema and itching in less than five minutes. Similar tests on normal subjects were negative.

IMMUNOLOGIC STUDIES

Blood was drawn from the patient Oct. 28, 1938, and Feb. 10, 1939, for the immunologic tests to be described. In each instance the serum obtained was filtered and tested for sterility. The Wassermann reaction was

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Read in part before the Society for the Study of Asthma and Allied Diseases, Atlantic City, N. J., April 29, 1939.

1. Bergey, D. H., and Etris, Samuel: Active Immunization Against Tetanus Infection with Refined Tetanus Toxoid, *J. Immunol.* **31**: 363 (Nov.) 1936.
2. Jones, F. G., and Moss, J. M.: Studies on Tetanus Toxoid: I. Antitoxic Titer of Human Subjects Following Immunization with Tetanus Toxoid and Tetanus Alum Precipitated Toxoid, *J. Immunol.* **30**: 115 (Feb.) 1936.
3. Hall, W. W.: Active Immunization Against Tetanus with Tetanus Toxoid, *Mil. Surgeon* **80**: 105 (Feb.) 1937.
4. Gold, Herman: Active Immunization of Allergic Individuals Against Tetanus by Means of Tetanus Toxoid, Alum Precipitated Refined, *J. Allergy* **9**: 545 (Sept.) 1938.
5. Cowles, Philip B.: Tetanus Immunization, *Yale J. Biol. & Med.* **9**: 409 (May) 1937.
6. Paris Letter: Report of a Committee on Vaccination Against Tetanus, *J. A. M. A.* **105**: 1202 (Oct. 12) 1935.
7. Bergey, D. H., and Etris, Samuel: Immunization of Humans with Alum Precipitated Toxoid, *Am. J. Pub. Health* **24**: 582 (June) 1934.

negative. The blood obtained in October is designated as G. C. serum 1 and the blood obtained in February as G. C. serum 2.

1. *Precipitin Tests*.—These tests were made by using 0.2 cc. of G. C. serum 1 in each test tube. In one experiment 0.4 cc. of a 1 per cent Berna peptone solution was used in serial dilutions ranging from 1:20 to 1:320. In a second experiment the broth medium used in making the particular toxoid was used in the same amounts and in the same dilutions. All tubes were incubated two hours at 56 C. and kept at 7 C. overnight. No precipitins were found.

2. *Passive Transfer to Guinea Pig*.—An intraperitoneal injection of 2.5 cc. of G. C. serum 1 was made into a guinea pig into which ragweed pollen extract had been injected three weeks previously. The following day the uterine strips were tested by the Dale technic. No contraction was obtained on testing with the toxoid broth, which, as will next be shown, specifically reacted in passively sensitized cutaneous sites. The muscle was reactive to the pollen extract and to histamine. A larger amount of serum might well have been used but was not available.

3. *Passive Transfer to Human Skin: Qualitative Tests*.—Sites were made by injecting 0.05 cc. of G. C. serum 1 diluted 1:10 into six normal persons acting as subjects. The sites were tested after forty-eight hours with 0.02 cc. of a 1:10 dilution of the tetanus toxoid used in the immunization of patient G. C. All the sites in the six subjects gave positive immediate wheals, whereas normal areas, where no injection was made, were nonreactive. Thus was demonstrated in G. C. serum 1 the presence of skin sensitizing antibodies for some substance in this tetanus toxoid preparation.

It was then in order to determine to which ingredient of the toxoid the patient had been sensitized. The following experiment was carried out on another normal subject: One-tenth cc. of G. C. serum 1 diluted 1:10 was injected into each of twenty-one sites. After forty-eight hours doses of 0.02 cc. of each of the various ingredients of the particular toxoid, other commercial toxoids and commercial "peptones" as listed in table 1 were injected into the sites. In this experiment the positive tests showed that the reacting substance was present in the alum precipitated tetanus toxoid (site 1), in the broth used in making the toxoid (site 2) and in the Berna peptone (site 3). A similar reaction was obtained with Witte peptone (site 4). Commercial tetanus toxoids 2 and 3 (sites 13 and 14) purchased in the open market gave indication, by positive reaction, of a "peptone" of the Witte or Berna type in the culture medium, while another, tetanus toxoid 4 (site 15), gave only a suggestion of a reaction. All the other ingredients (sites 7 to 12) used in the manufacture of the toxoid were negative by test.

Chemical analysis which need not be detailed here resulted in the separation of different fractions of three commercial peptones. It showed that Berna and Witte so-called peptones consist largely of primary and secondary proteoses with a very small percentage of peptone, while Bacto-peptone is almost a pure peptone with a very small fraction precipitated by saturation with ammonium sulfate. Neither the Bacto-peptone (site 5) nor the latter fraction when purified and redissolved in proper concentration (site 20) gave positive reactions in passive transfer sites made with G. C. serum 1. Autoclaving a 0.001 per cent solution of Berna peptone at 16 pounds pressure for twenty minutes did not

appear to alter its capacity to react in normal skin sites sensitized with G. C. serum 1 (site 6). The completely dialyzed Berna peptone (site 16) as well as the purified primary (site 18) and secondary (site 19) proteoses gave positive reactions. Control tests in normal areas of skin gave negative reactions and are not recorded in the table. It is interesting that in other carefully controlled quantitative tests not detailed here, using the in vitro neutralization method, the primary and secondary proteoses were practically identical in their antibody neutralizing capacity.

As a further step we were able to secure a broth filtrate (T. S. 40), made with the nonreacting Bactopeptone, of a strain of *Clostridium tetani* which produces no toxin. A broth of this type from which the bacteria have been removed does contain certain reactive substances, as will be shown later; but on tests in sites made with G. C. serum 1 there was no reaction (site 21), so that no sensitization to bacterial substances was demonstrated in patient G. C.

TABLE 1.—Tests Demonstrating Sensitization to Ingredients of Toxoid

G. C. Serum 1 Sites	Tested with	Result	Tests in Normal Skin
1	Tetanus toxoid 1 diluted 1:100.....	++++	0
2	Tetanus toxoid 1 broth diluted 1:100.....	++++	0
3	Berna peptone, 0.001%.....	++++	0
4	Witte peptone, 0.001%.....	++++	0
5	Bacto-peptone, 0.001%.....	0	..
6	Berna peptone (autoclaved), 0.001%.....	++++	0
7	Veal infusion diluted 1:10.....	0	..
8	Beef infusion diluted 1:10.....	0	..
9	Alum, 0.4%.....	0	..
10	Merthiolate, 0.01%.....	0	..
11	Solution of formaldehyde, 0.003%.....	0	..
12	Dextrose, 1%.....	0	..
13	Tetanus toxoid 2 diluted 1:100.....	+++	0
14	Tetanus toxoid 3 diluted 1:100.....	+++	0
15	Tetanus toxoid 4 diluted 1:100.....	±	0
16	Berna peptone dialyzed, 0.001%.....	+++	0
17	Berna peptone dialysate, 0.001%.....	0	..
18	Berna primary proteose, 0.001%.....	+++	0
19	Berna secondary proteose, 0.001%.....	+++	0
20	Bacto-peptone, ammonium sulfate precipitate, 0.001%.....	0	..
21	T. S. 40 diluted 1:10.....	0	..

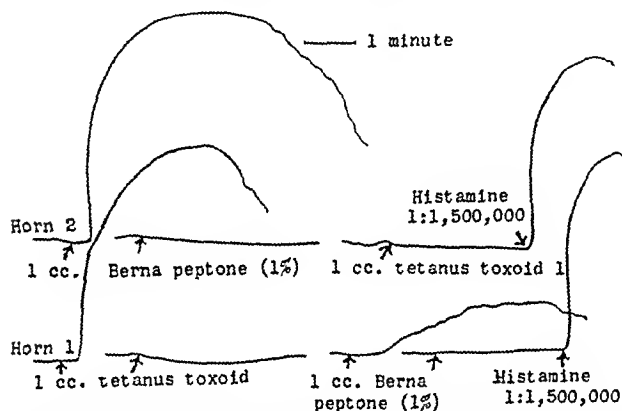
4. *Passive Transfer to Human Skin: Neutralization in Vivo*.—The injection of antigen into the sites made with sensitive serum in normal subjects uses up, or neutralizes, antibody in the ensuing reaction. When a site is retested the day after a reaction, no reaction occurs if sufficient antigen has been used. If there are antibodies for two antigens in the same serum, only the one specific for the antigen injected is used up. Such an experiment in neutralization in vivo was done. Preliminary experiments had indicated the amount of antigen necessary to neutralize the antibody in the amount of serum injected.

On the back of a normal subject sites were made by injecting 0.05 cc. of G. C. serum 1 diluted 1:10 into each site. Two days later into each site was injected 0.02 cc. of various antigens, and the presence or absence of reaction was noted. The following day, when the reacting sites had returned to normal, they were retested. The tests and results on each of the two days are recorded in table 2. Control tests in normal areas of skin were all negative and are not listed.

This experiment showed that G. C. serum 1 contained antibodies for and reacted to tetanus toxoid 1 containing Berna peptone (site 1) and to a refined secondary proteose obtained from the Berna peptone (site

2). It did not react with the sterile filtrate of *Clostridium tetani* containing Bacto-peptone (site 3) but no proteose. The test also showed that tetanus toxoid 1 had used up the antibody in site 1 so that no reaction was obtained with Berna peptone the following day. This result was reversed in site 2. In sites 3 and 4, tested first with the toxin free, proteose free broth filtrate, and in site 5, with Bacto-peptone, the antibody was not used up, as indicated by the later reactions with the toxoid or the Berna preparations. This experiment also showed (sites 6 and 7) that in this patient's serum the antibody for the Witte and Berna peptones was equally neutralizable by either and that the primary and secondary proteoses of Berna peptone were almost equal in reciprocal neutralizations (sites 8 and 9).

5. *Anaphylaxis in Guinea Pig*.—Fink⁸ reviewed the work on antigenic properties of proteoses up to 1919 and in summary stated "Experiments with products of protein digestion have shown that proteins cannot be disintegrated much if any beyond the coagulable form without losing their sensitizing and intoxicating properties. Positive experiments reported with proteoses as anaphylactogens have not been fully confirmed." He also carried on various experiments. Of them he said



Results of the tetanus toxoid experimental (Dale technic). A guinea pig was given an intraperitoneal injection of 2.5 cc. of alum precipitated tetanus toxoid 1 Nov. 25, 1938. The uterine horns were tested on December 20.

"Anaphylaxis experiments with guinea pigs showed that the Witte 'peptone' preparations possessed only very slight power of sensitizing to themselves," and later "In all forms of antibody reaction the antigenic proteoses⁹ were not specific, in that egg white could be used as antigen in place of either fraction." A review of the literature since 1919 discloses the fact that relatively little work has been done on the antigenicity of the cleavage products resulting from the action of enzymes on proteins. The present day consensus is reflected in a chapter on antigens and antibodies¹⁰ in which the writers, mentioning these substances, said "Some positive results have been reported but these are apparently due to protein impurities in the materials used for the experiments." The only reference found in Zinsser's¹¹ recent book is in the discussion of plasteins, said to be formed by "enzymes acting on proteoses or peptones which are themselves non-antigenic." Wells¹² decried the experimental use of

"commercial preparations of protein cleavage products such as Witte's 'peptone' and the like." It is true enough that they are variable, as he said, and the experiment suffers from the fact that without knowledge of its origin tests could not be made with the protein from which the peptone is derived; but we are dealing here with an induced sensitization in a man whose serum transferred sensitiveness to a weak solution of Berna peptone, to the primary and secondary proteoses obtained from it by repeated reprecipitations with 50 per cent and 100 per cent saturation of ammonium sulfate and to an autoclaved solution of the so-called peptone respectively. In spite of Wells's objections, then, we proceeded to determine antigenicity by intraperitoneal injections into guinea pigs of commercial tetanus toxoids and preparations of commercial "peptones" with and without alum precipitation. Evidence of sensitization was determined by the usual technic employed for the Dale test.

The accompanying chart represents such an experiment; it is typical of the positive results obtained. The intraperitoneal injection was made Nov. 25, 1938. The guinea pig was killed by exsanguination, and the uterine horns were immediately removed and tested on December 20. After each test the bath was changed and washed. The addition of tetanus toxoid to the bath produced a prompt contraction of the first horn. The toxoid was again added with no response. Berna peptone was added and a slight contraction was obtained. When repeated, the test was negative. Histamine was then added and a prompt contraction occurred. Horn 2 was placed in the bath and Berna peptone was added. It produced a contraction, and the horn was negative to further test with this peptone and the toxoid with which the animal was sensitized. The histamine reaction was positive. Of a total of nineteen guinea pigs given injections of various commercial alum precipitated toxoids or Berna or Witte peptone, eighteen were found sensitive by the Dale test, which indicates a relatively high degree of antigenicity of such proteose containing preparations. Twelve animals similarly given injections of alum precipitated Bacto-peptone did not show evidence of sensitization. Especial interest attaches to commercial tetanus toxoid 4, which had not given definitely positive reactions in the passive transfers to human skin with G. C. serum 1 (table 1, site 15). Of six guinea pigs given injections of tetanus toxoid 4, none were sensitive to the proteose preparations but two were found sensitive to tetanus toxoid 4 and to the broth filtrate of a strain of *Clostridium tetani* (T. S. 40) which produces no toxin. Since twelve other animals had consecutively shown no sensitization to Bacto-peptone it is possible that these animals were reactive to the bacterial products in tetanus toxoid 4 and T. S. 40.

IMPORTANCE OF THIS SENSITIZATION IN MAN

The frequency and duration and therefore the importance of such sensitizations in man as recorded here has not been determined. Of a total of about twenty-five reinjections of tetanus toxoid at an interval of from two to four months after the first injection we have encountered four instances of induced sensitization with but one reaction of serious proportions. In a second case (B. H.) the cutaneous test preliminary to the second injection of tetanus toxoid was so positive that the dose was not then given. The passive transfer test with the serum was negative. Six months later the subject was retested; the reaction was nega-

8. Fink, E. B.: The Antigenic Properties of Proteoses, *J. Infect. Dis.* 25: 97, 1919.

9. Egg white.
10. Gay, Frederick P., and others: *Agents of Disease and Host Resistance*, Baltimore, Charles C. Thomas, Publisher, 1935, p. 335.

11. Zinsser, Hans; Enders, John F., and Fothergill, Le Roy D.: *Immunity Principles and Application in Medicine and Public Health*, ed. 5, New York, Macmillan Company, 1939, p. 42.

12. Wells, H. Gideon: *The Chemical Aspects of Immunity*, New York, Chemical Catalog Company, 1929, p. 33.

tive, and the toxoid injection was given cautiously with no untoward results. Another subject (A. K.) was given the first dose of tetanus toxoid June 17, 1938, without local reaction. September 27 the second dose produced immediately a very marked local swelling with itching lasting twenty-four hours. The cutaneous test with tetanus toxoid 1:10 eight months after this second dose showed a marked urticarial wheal in five minutes. Passive transfer test with the serum then obtained was weakly positive. The serum of a fourth subject (D. Y.), who had had two toxoid injections with no reactions, was being checked by passive transfer four months after the second dose. A positive reaction was obtained to the original toxoid and to the Berna peptone but, in contrast to the result with patient G. C., not to the Witte peptone. This led to the following experiment, in which we compared by neutralization test the D. Y. serum with G. C. serum 2 in the same normal subject:

D. Y. serum and G. C. serum 2 were mixed in separate test tubes with equal amounts of Berna and of

Such vagaries of sensitization are well recognized, but they add greatly to the difficulties of a solution of the phenomenon. This prompts us to give a brief record of a case of induced sensitization to the bacterial products of *Clostridium tetani*. While such an occurrence has been recorded for *Corynebacterium diphtheriae* by Neill¹³ and his associates we have found no record in the literature of sensitization to the tetanus protein. Dr. Phillip Cowles gave us the history of this case and the opportunity to test the serum.

A man aged 40 had no personal or family history of allergy. One cc. of alum precipitated tetanus toxoid was given in July and again in September 1934 with no local or general reaction. In July 1935 a scratch test was done on one forearm with the original alum precipitated toxoid controlled with alum precipitated broth on the other forearm. There was no immediate reaction, but on the second day the toxoid site showed considerable induration. A normal subject not previously given an injection of toxoid gave no reaction. From this date to June 1936 occasional scratch and

TABLE 2.—Neutralization of Antibodies in Vivo

G. C. Serum 1 Sites	Tested 48 Hours Later with	Result	Retested Next Day with	Result
1	Tetanus toxoid 1 diluted 1:100.....	+++	Berna secondary protease, 0.01%.....	0
2	Berna secondary protease 0.01%.....	+++	Tetanus toxoid 1 diluted 1:100.....	0
3	Broth filtrate (T. S. 40).....	0	Tetanus toxoid 1 diluted 1:100.....	+++
4	Broth filtrate (T. S. 40).....	0	Berna secondary protease, 0.01%.....	+++
5	Bacto-peptone, 0.01%.....	0	Berna peptone, 0.01%.....	+++
6	Berna peptone, 0.01%.....	+++	Witte peptone, 0.01%.....	0
7	Witte peptone, 0.01%.....	++++	Berna peptone, 0.01%.....	0
8	Berna primary protease, 0.01%.....	++	Berna secondary protease, 0.01%.....	±
9	Berna secondary protease, 0.01%.....	+++	Berna primary protease, 0.01%.....	0

TABLE 3.—Comparison of D. Y. Serum and G. C. Serum by Neutralization Test

Site In Subject	Mixtures Injected	Tested 48 Hours Later with	Result
1	D. Y. serum and Berna peptone, 0.001%.....	Berna peptone, 0.01%.....	+
2	D. Y. serum and Berna peptone, 0.01%.....	Berna peptone, 0.01%.....	0
3	D. Y. serum and saline solution.....	Witte peptone, 0.01%.....	0
4	D. Y. serum and Witte peptone, 0.001%.....	Berna peptone, 0.01%.....	+++
5	D. Y. serum and Witte peptone, 0.01%.....	Berna peptone, 0.01%.....	+++
6	D. Y. serum and saline solution.....	Berna peptone, 0.01%.....	+++
7	G. C. serum 2 and Berna peptone, 0.001%.....	Berna peptone, 0.01%.....	+
8	G. C. serum 2 and Berna peptone, 0.01%.....	Berna peptone, 0.01%.....	0
9	G. C. serum 2 and saline solution.....	Witte peptone, 0.01%.....	+++
10	G. C. serum 2 and Witte peptone, 0.001%.....	Berna peptone, 0.01%.....	0
11	G. C. serum 2 and Witte peptone, 0.01%.....	Berna peptone, 0.01%.....	0
12	G. C. serum 2 and saline solution.....	Berna peptone, 0.01%.....	+++

Witte peptone of the strengths stipulated in table 3. To the two serums were also added in separate tubes equal amounts of physiologic solution of sodium chloride for a control. One-tenth cc. of each mixture was injected in a site in a normal subject. The sites were marked and after a lapse of forty-eight hours they were tested; the results are shown in table 3.

This table shows that D. Y. serum did not react (site 3) to Witte but that it did (site 6) to Berna peptone. D. Y. serum was neutralized by sufficient Berna peptone and did not react on retest with Berna peptone (site 2). Furthermore, Witte peptone did not neutralize D. Y. serum against Berna peptone (site 5). With G. C. serum 2, however, the tests with Witte and Berna peptones (sites 9 and 12) were both positive and the Witte peptone had neutralized to the Berna test (sites 10 and 11). Interest attaches to this because both these patients received commercial tetanus toxoid 1 containing Berna peptone for their immunizing doses, and yet one patient (D. Y.) was found sensitive to Berna peptone alone whereas the other patient (G. C.) was sensitive to both "peptones."

intracutaneous tests were done with various tetanus toxoids and filtered broth cultures, with apparently increasing reactions. In August 1936 0.05 cc. of a commercial plain toxoid was injected, with immediate appearance of an urticarial wheal which subsided in one hour. In twenty-four hours the entire arm was so markedly swollen and indurated that the patient was incapacitated for five days. He has had no tests or injections since that time. Blood was drawn for passive transfer tests March 1, 1939. The serum, designated P. Cl., was compared with G. C. serum 2. On the back of a normal subject six sites were made by the intradermal injection of 0.05 cc. of G. C. serum 2 into each, and the same number of sites were made with the same amount of P. Cl. serum. At the end of forty-eight hours the sites were tested with 0.05 cc. of the various substances recorded in table 4. Readings were made in ten minutes. Control sites were all negative to the test and are not recorded here. It will be observed that G. C.

13. Neill, James M., and Fleming, William L.: Studies on Hypersensitiveness to Diphtheria Bacilli: I. An Immediate Skin Reaction Which Can Be Passively Transferred, *J. Exper. Med.* 44: 33 (Jan.) 1927.

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serum 2 reacted only in sites 2 and 6, in which the test antigen contained Berna peptone, whereas P. Cl. serum reacted with all of the substances containing bacterial substance, even that containing no toxin (site 7) but did not react with the ingredients of the culture medium alone.

Some idea of the degree and duration of sensitivity induced by the proteose containing tetanus toxoid preparations was obtained by carrying out passive transfer tests with diluted serum. For this purpose we compared G. C. serum 1, G. C. serum 2 and D. Y. serum.

TABLE 4.—Comparison of P. Cl. Serum with G. C. Serum by Passive Transfer Test

Test Antigens	G. C. Serum 2		P. Cl. Serum	
	Site	Result	Site	Result
T. S. 40 diluted 1:100.....	1	0	7	++
Tetanus toxoid 1 diluted 1:100.....	2	0	8	++
Tetanus toxoid 4 diluted 1:100.....	3	++	9	+
Bacto-peptone, 0.001%.....	4	0	10	+
Beef infusion diluted 1:100.....	5	0	11	0
Berna peptone, 0.001%.....	6	+++	12	0

The sites were made on the back of a normal subject by the injection of 0.1 cc. of serial dilutions of the serum. Two days later the sites were tested by injecting 0.02 cc. of a 0.01 per cent solution of Berna peptone; reactions read in ten minutes are recorded in table 5.

These results showed that the D. Y. serum was relatively weak in sensitizing antibody, a definite reaction being obtained with the 1:10 dilution, whereas G. C. serum showed sensitizing capacity when diluted 100 times. This experiment also showed that patient G. C. had not lost any of his sensitization over the period of approximately four months intervening between the collections of serum 1 and serum 2. Very little that is definite can as yet be said on the question of duration of the sensitivity, once it is established. We have already mentioned that patient B. H., who reacted positively by direct test but whose blood did not transfer the reaction and whose sensitivity therefore was slight, had lost cutaneous reactivity in six months. Patient D. Y. was definitely sensitive four months after his second toxoid injection, and patient G. C. showed no sign of decreasing reactivity four months after the second injection. As to those subjects found sensitive after the second toxoid injection, no information is yet available.

COMMENT

The real object of this presentation is to acquaint the medical profession with proof of the fact that sensitivity can be induced as a result of the present procedures of active immunization to tetanus. We believe that this occurs more often than present reports indicate. It is by no means, however, our purpose to decry the use of this important therapeutic procedure; we wish rather to make constructive suggestions to increase its usefulness and yet guard against the early difficulties that beset the introduction of antitoxic serums.

The following precautions seem to be indicated: A scratch test should always be made before the second and any later injection of the toxoid preparations, and for purposes of record and comparison it should be done before a first injection. This test is preferably made on the anterior surface of the forearm. The scratch should remove the epidermis without drawing blood. A drop of the toxoid that is to be injected should be

placed on the abraded area, lightly rubbed in and allowed to remain fifteen minutes. It is then wiped off. If there is no urticarial wheal and erythema the required injection may be made, but always with the precautions to be given later. If there is a very active wheal and erythema, prudence dictates that the injection should be postponed and the test repeated in from four to six months. If the wheal is slight or moderate one may proceed, using first 0.2 cc. of a 1:10 dilution of the toxoid. If no general reaction occurs in twenty minutes, give 0.5 cc. of a 1:10 dilution; after waiting again twenty minutes, 0.1 cc. of the concentrated toxoid, and so proceed gradually and cautiously until the required dose of from 0.5 to 1 cc., depending on the circumstances, has been given. Under all circumstances, with any dose, the patient must be kept under observation for at least one-half hour, for any reaction of serious import will begin within this time. Following the directions originally given by one of us¹⁴ the physician should always have close at hand a bottle of epinephrine diluted 1:1,000, a sterile hypodermic syringe and a tourniquet. If there is any evidence of general reaction such as itching palms, general pruritus, erythema or urticaria, cough or a sense of pressure in the chest, the tourniquet should be tightly applied above the injection site and epinephrine should be administered in doses of from 0.5 to 1 cc. and the procedure repeated as indicated. It is better to give the toxoid injection in the arm, as the tourniquet may be applied more effectively.

One further suggestion may be made to the research departments of pharmaceutical houses producing tetanus toxoid and to bacteriologists in general. Some culture medium should be sought that does not contain such an antigenic substance as proteose and yet will permit a toxin production of high titer. Such a synthetic

TABLE 5.—Comparison of Three Serums by Passive Transfer Tests

Serum Dilution	G. C. Serum 1		G. C. Serum 2		D. Y. Serum	
	Site*	Result	Site*	Result	Site*	Result
Concentrated.....	1	++++	6	++++	11	+++
1:10.....	2	+++	7	+++	12	+
1:30.....	3	++	8	++	13	±
1:100.....	4	+	9	+	14	0
1:300.....	5	0	10	0		

* Sites were made by injecting 0.1 cc. of the three serums in the strengths noted. Forty-eight hours later 0.02 cc. of a 0.01 per cent solution of Berna peptone was injected into the sites.

medium as that recently worked out for the production of diphtheria¹⁵ toxin would undoubtedly avoid many of the difficulties and dangers.

NOTE.—Since this paper was written, two cases have been observed in which a delayed urticaria developed on the second day after an injection of alum precipitated tetanus toxoid. In one case, after the second injection, the urticaria lasted five days; in the other, after the third injection, the urticaria lasted two months. Neither patient had had urticaria previously or had any untoward reaction from the first injection of toxoid. Neither case showed any significant skin test reaction to the toxoid (1:10) before or after the therapeutic injection.

14. Cooke, Robert A.: On Constitutional Reactions: The Dangers of the Diagnostic Cutaneous Test and Therapeutic Injection of Allergens. *J. Immunol.* 7: 119 (March) 1922.
15. Pappenheimer, A. M., Jr.: Mueller, J. H., and Cohen, Sidney: Production of Potent Diphtheria Toxin on a Medium of Chemically Defined Composition, *Proc. Soc. Exper. Biol. & Med.* 36: 793 (June) 1937.

POTASSIUM CHLORIDE IN ALLERGIC
DISORDERS

A CLINICAL STUDY

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By reasoning from different premises, diametrically opposite conclusions can be drawn regarding the possible role of sodium and of potassium therapy in allergic disorders. Likewise, diametrically opposite results have been claimed for the use of these substances in the treatment of allergy. The present report represents an effort to evaluate the therapeutic claims for these ions by means of a critical analysis of published reports, a search for possible explanations of the contradictory results obtained by different workers and a study of the effects of potassium therapy in which the clinical results are compared with sodium and potassium concentrations in the blood serum before and after treatment.

Because of certain analogies between the allergic state and Addison's disease, the Pottengers¹ treated a group of allergic patients with whole adrenal substance and epinephrine. Sodium chloride was added in amounts of from 9 to 18 Gm. daily. All three substances were given orally. Prickman and Koelsche² gave adrenal cortex extract intravenously and increased the intake of sodium chloride in the diet "to the limit of tolerance." Fineman,³ Barbour,⁴ and Wilmer and Miller⁵ gave adrenal cortex but no added sodium chloride. All except Prickman and Koelsche reported fair to excellent results. Prickman and Koelsche observed no effects from the medication. On the other hand, Stoesser and Cook⁶ reported that in children a high sodium chloride intake increased asthmatic symptoms. They gave no cortical extract.

On the assumption that certain allergic disturbances are but a form of edema and that they might therefore respond to treatment which is sometimes effective in the management of other forms of edema, potassium salts with or without the restriction of sodium salts have been used. Presumptive evidence against the possible beneficial effect of potassium administration to allergic patients might be assumed from the work of Feldberg and Guimarães,⁷ who reported in 1936 that potassium causes the release of acetylcholine. In 1937 Wenner and Bulmester⁸ reported a marked increase in the serum potassium of rabbits during anaphylactic shock.

In 1932 one of us (G. F. H.) used a salt-poor diet with added potassium chloride in a small group of

patients (five) with chronic urticaria at the University of Chicago Clinics. No favorable results occurred and the work was not reported. In 1938 Rusk and Kenamore⁹ reported six cases of urticaria treated with high protein, low sodium, acid-ash diet. In five of the six cases from 4 to 6 Gm. of potassium chloride was added daily. All six patients were relieved. Following the appearance of this article, another small group of urticaria patients (four) was treated in this manner by one of us (G. F. H.), with negative results, as before. Cohen¹⁰ reported eight cases of urticaria treated in the same way. Six of these patients were no better and two were worse. The medication of one of the latter had to be discontinued because of severe gastrointestinal cramps.

In 1938 Stoesser and Cook,⁶ who had found that a diet high in sodium chloride caused an increase in the asthmatic symptoms of children, treated four patients with a low salt diet and artificial fever and two others with low salt diet alone. In five cases complete remission occurred, and in the sixth case there was a striking decrease in the number of attacks. All six patients experienced a return of asthma when sodium chloride in amounts of from 1 to 20 Gm. daily was added to the diet. In four other cases in which remissions did not occur on a low sodium chloride intake from 6 to 10 Gm. of potassium chloride daily was added. In the milder cases there was improvement but in the others no change occurred. However, prompt improvement followed when the potassium chloride was discontinued. By the administration of pitressin, which increases the output of sodium chloride, they found that there was a reduction in the number and severity of asthmatic seizures both during and after the antidiuretic period and concluded therefore that the improvement was not due to dehydration but to loss of sodium ions.

In December 1938 Bloom¹¹ reported on the use of potassium salts in hay fever. In twenty-three cases of hay fever and in six cases of hay fever and asthma, from 50 to 100 per cent relief was obtained from doses of 1 Gm. daily. Relief was observed in from a few minutes to one-half hour after the ingestion of the 5 grain (0.3 Gm.) capsule. No failures were reported among the hay fever patients. In ten cases of asthma there was no benefit. Three patients with urticaria, two with eczema and three with chronic sinusitis responded favorably, whereas only one of three patients with migraine was benefited.

In June 1939 Rusk, Weichselbaum and Somogyi,¹² in an article on changes in the serum potassium in certain allergic states, reported that some patients with urticaria and asthma are relieved by potassium chloride therapy and others are not. In August 1939 Abt¹³ reported twenty-seven cases of hay fever, asthma, allergic rhinitis and chronic sinusitis in which relief was obtained in from one to five days by 1 to 5 grains (0.06 to 0.3 Gm.) of potassium chloride three times a day. Apparently the sodium chloride intake was limited also. It should be noted that this work was done

From the Rees-Steady Medical Research Fund.

1. Pottenger, F. J., Jr., Pottenger, R. T., and Pottenger, F. M.: The Treatment of Asthma with Special Reference to Oral Use of Adrenal Hormones and Sodium Chloride, *California & West. Med.* 43:10-13 (July) 1935.

2. Prickman, L. E., and Koelsche, G. A.: Observations on Treatment of Asthma and Related Conditions with Suprarenal Cortical Extract (Cortin), *J. Allergy* 9:158-165 (Jan.) 1938.

3. Fineman, A. H.: Use of Suprarenal Cortex in the Treatment of Bronchial Asthma, *J. Allergy* 4:182-190 (March) 1933.

4. Barbour, Orville: Treatment of Asthma with Whole Suprarenal Gland. Preliminary Report, *Arch. Pediat.* 13:203-209 (March) 1936.

5. Wilmer, H. B., and Miller, M. M.: Use of Adrenal Cortical Hormone in Treatment of Allergic Manifestations, *J. Allergy* 8:77-78 (Nov.) 1936.

6. Stoesser, J. V., and Cook, M. M.: Possible Relation Between Electrolyte Balance and Bronchial Asthma, *Am. J. Dis. Child.* 56:943-944 (Oct.) 1938.

7. Feldberg, W., and Guimarães, J. A.: Liberation of Acetylcholine by Potassium, *J. Physiol.* 56:306-314 (March 9) 1936.

8. Wenner, W. F., and Bulmester, Catherine C.: Potassium and Acetylcholine of the Blood of Rabbits in Anaphylactic Shock, *J. Allergy* 9:85-87 (Nov.) 1937.

9. Rusk, H. A., and Kenamore, B. D.: Urticaria—New Therapeutic Approach, *Ann. Int. Med.* 11:1838-1844 (April) 1938.

10. Cohen, A. E.: The Treatment of Chronic Urticaria with High Protein, Low Sodium, Acid-Ash Diet, with Added Potassium Chloride, *J. Allergy* 10:61-63 (Nov.) 1938.

11. Bloom, Benson: The Use of Potassium Salts in Hay Fever; Preliminary Report, *J. A. M. A.* 111:2281-2283 (Dec. 17) 1938.

12. Rusk, H. A.; Weichselbaum, T. E., and Somogyi, Michael: Changes in Serum Potassium in Certain Allergic States, *J. A. M. A.* 112:2395-2398 (June 10) 1939.

13. Abt, A. F.: Note on Oral Administration of Potassium Chloride in the Treatment of Hay Fever, Nasal Allergy, Asthma and Sinusitis, *Am. J. M. Sc.* 108:229-231 (Aug.) 1939.

in Chicago and that treatment in all these cases was begun on or after Oct. 21, 1938, so that it is highly improbable that any of these patients were suffering from true pollinosis at the time the study was made.

In a communication to THE JOURNAL Engelsher¹⁴ reported sixty-four cases of tree and grass pollinosis treated with 1 Gm. daily of potassium chloride. More

season of 1939. The pertinent data regarding each patient and the results obtained are summarized in the accompanying table.

In the earlier cases potassium chloride was administered as follows: The measured amount of potassium chloride was placed in an individual salt cellar and used *ad libitum* at the table in place of sodium chloride. At

Summary of

Patient	Age	Family History	Type of Allergy	Duration	Severity According to		Nasal Smear Eosinophils	Treatment			Other
					Tests	Symptoms		Potassium Chloride, Gm. Daily	Duration, Days	Sodium Chloride Restriction	
1	86	.....	Vasomotor rhinitis	6 yrs.	..	+++	60%	3	7	Yes	None
2	25	Eczema	Eczema, hay fever	25 yrs.	++	+++ +	....	2	14	Yes	Diet, pollen
3	68	.....	Urticaria	2 yrs.	..	+++	....	4	7	Yes	Epinephrine, P. r. z.
4	31	Positive	Vasomotor rhinitis, migraine	4 yrs.	+-	++	30%	3	7	Yes	House dust
5	27	Positive	Hay fever	12 yrs.	+++	++	75%	2	42	Yes	Pollen, house dust
6	36	Negative	Hay fever	7 yrs.	+++	++	....	2	21	Yes	Pollen, house dust
7	35	Negative	Hay fever	2 yrs.	++	++	40%	2	7	Yes	None
8	34	Positive	Hay fever	5 yrs.	++	++	....	2	21	No	Pollen
9	46	Positive	Vasomotor rhinitis	2 yrs.	+	+	....	2	14	Yes	None
10	52	Positive	Asthma, hay fever	7 yrs.	+	++ +, ++++	80%	2	14	Yes	House dust
11	30	Positive	Hay fever, migraine	10 yrs.	++	++ +, ++++	....	2	4	Yes	Pollen
12	35	Negative	Eczema, migraine, hay fever	18 yrs.	++	+++ +, ++++	....	3	14	Yes	Pollen, diet, house dust
13	35	Negative	Exfoliative dermatitis	1 mo.	..	++++	....	3	7	Yes	Sodium thiosulfate
14	26	Positive	Hay fever, asthma	Lifelong	++++	++++	....	3	7	Yes	None
15	12	Negative	Asthma, hay fever	Lifelong	+	++	....	1	90	No	Pollen, house dust
16	40	Negative	Hay fever, asthma	25 yrs.	+++	+++ +	....	2	14	Yes	Pollen
17	30	Positive	Hay fever	2 seasons	++++	++++	....	3	20	Yes	None
18	29	Negative	Hay fever	6 days	++	++++	Unsatisfactory	1	16	No	None
19	26	.....	Hay fever	Since childhood	++	++	50%	1	21	No	Pollen
20	68	Negative	Hay fever, asthma	8 yrs.	++++	+++ +	Unsatisfactory	1	7	No	Pollen
21	39	Positive	Hay fever	10 yrs.	++++	+++	90%	1	8	No	None
22	42	Positive	Vasomotor rhinitis	6 yrs.	+-	++	....	1	7	No	Endocrine
23	45	.....	Hay fever	10 yrs.	+	++	....	1	21	No	Pollen
24	19	Positive	Hay fever	10 yrs.	++++	++	....	1	14	No	None
25	43	Positive	Hay fever	10 yrs.	++++	++++	80%	2	4	No	None
26	40	Positive	Hay fever, asthma	11 yrs.	++	++	70%	2	5	No	Pollen
27	30	Negative	Hay fever	3 wks.	++	+++	....	2	8	No	None
28	44	Positive	Gastrointestinal allergy, hay fever	7 yrs.	+-	++ +	90%	2	21	No	None
29	18	Positive	Hay fever	6 mos.	++++	++++	50%	2	4	No	None
30	23	Positive	Hay fever (pregnant)	10 yrs.	++	++++	75%	2	8	No	None
31	28	Positive	Gastrointestinal allergy, hay fever	10 yrs.	++	++ +, ++++	60%	3	5	Yes	Pollen, diet
32	36	Positive	Hay fever, urticaria	15 yrs.	+++	++ +, ++	40%	3	6	Yes	None
33	5	Negative	Hay fever, asthma	2 yrs.	+	++	....	0.6	21	No	Pollen
34	20	Negative	Urticaria	1 mo.	..	+++	....	3	7	Yes	None
35	20	Positive	Asthma	16 yrs.	++	++	60%	1	7	Yes	Pollen, house dust
36	40	.....	Urticaria	6 days	..	+++	....	2	5	Yes	None
37	69	Positive	Asthma	12 yrs.	+	++	....	3	9	Yes	None
38	25	Negative	Vasomotor rhinitis, (pregnant)	2 mo.	..	+++	80%	1	7	No	None
39	8	Positive	Hay fever	1 mo.	..	++	80%	0.23	30	No	Pollen
40	13	Positive	Hay fever, asthma	12 yrs.	+++	++ +, ++	....	?	30	Yes	Pollen, house dust

than half of these were not affected and, with one or two exceptions, the patients who were relieved reported greater relief from acetylsalicylic acid.

CLINICAL STUDY

The present study of the effect of potassium therapy clinically and on the blood serum of allergic patients was carried out during the tree and grass hay fever

the end of the day any that remained in the salt cellar was taken with water. Thus the sodium chloride intake was restricted and the potassium chloride intake was increased. The prescription was given with the simple comment that highly favorable results had been reported in the medical literature and that it could do no possible harm.

We believe, therefore, that, if anything, the patient was prejudiced in favor of this medication rather than against it. Early in the study it became apparent that

14. Engelsher, D. L.: Potassium Chloride in Allergy. J. A. M. A. 113: 961 (Sept. 2) 1939.

we were not obtaining the results that were reported by Bloom and by Abt. Therefore, although the change did not seem logical, we adopted their method of therapy. A 5 grain capsule of potassium chloride was given with each meal and sodium chloride was not restricted. Those who experienced gastrointestinal irritation were asked to sprinkle the powder on their

medication instituted simultaneously with the potassium chloride. In eighteen cases a serum sodium determination was made before and after potassium chloride therapy by the method of Butler and Tuthill,¹⁵ and in fifteen of these the serum potassium determined before and after medication by the method of Shohl and Bennett.¹⁶

Observations

Patient	Results: Blood Serum				Clinical Results
	Sodium		Potassium		
	Before	After	Before	After	
1	...	...	....	....	No relief
2	...	...	....	....	No relief from eczema; hay fever under control at time of trial
3	...	...	....	....	No relief (low sodium, high potassium, acid-ash diet)
4	...	...	....	....	No relief
5	324	327	....	....	No relief (relief from nasal cautery, also from nitrohydrochloric acid)
6	329	329	25.7	26.1	Definitely worse; definite relief from three-eighths grain phenyl-propanol-amine
7	...	...	....	....	No relief; excellent relief from three-eighths grain phenyl-propanol-amine
8	...	...	....	....	No relief; subsequent relief from pollen injections
9	...	...	....	....	No relief
10	325	312	....	....	No change in asthma; hay fever: subjectively slightly better; objectively, no change
11	...	...	....	....	No relief (catarrhic and nauseant); relief from phenyl-propanol-amine; attack of migraine with each attempt to take potassium chloride
12	325	324	....	....	No relief
13	...	...	....	....	Vomited with each dose; abandoned attempt (blood eosinophils, 8%); no change in skin
14	...	...	....	....	No relief; good results with pollen later
15	...	...	....	....	Questionable
16	...	...	....	....	No relief; good results with pollen later
17	337	336	25.3	29.7	No relief; definite relief from three-eighths grain phenyl-propanol-amine, excellent result with oral pollen therapy
18	329	325	22.9	16.8	Definite relief 1 hour after ingestion; superior to three-eighths grain phenyl-propanol-amine; good results when potassium chloride was resumed
19	...	...	....	....	Very questionable
20	342	331	24.0	25.1	No relief; good results with pollen injections
21	...	...	....	....	No relief; excellent results with pollen injections
22	...	...	....	....	No relief; relieved by three-eighths grain phenyl-propanol-amine
23	...	...	....	....	No relief
24	335	330	27.4	19.1	No relief; good results previous 3 years with pollen injections
25	331	328	23.3	19.7	Relieved; but improvement was maintained after potassium chloride was discontinued
26	323	325	27.1	21.5	No relief; marked abdominal cramps; relief from three-eighths grain phenyl-propanol-amine
27	317	340	19.3	18.4	Improved; but no change when potassium chloride was discontinued
28	338	322	18.2	18.8	No relief
29	...	...	....	....	No relief; definite relief from three-eighths grain phenyl-propanol-amine; also from amphet-amine inhaler
30	...	...	....	....	Relief after first dose; none thereafter; marked intestinal irritation
31	...	...	....	....	No relief; marked gastrointestinal irritation
32	339	321	16.4	19.1	No relief; definite relief from three-eighths grain phenyl-propanol-amine
33	...	...	....	....	Relieved (after stopping potassium chloride nose said to be excessively dry)
34	348	331	25.6	23.8	No relief; relief from food restriction
35	324	325	22.6	22.2	No relief; nausea and vomiting from 2 Gm. daily; relief from ephedrine
36	318	322	21.2	18.1	Relieved in 1 hour after first dose of 2 Gm.; however, no return of urticaria after discontinuing potassium chloride
37	326 318	330 326	24.0 23.5	19.4 17.9	No relief; nausea
38	...	...	....	....	No relief
39	...	...	....	....	Relieved; no change after discontinuing potassium chloride
40	...	...	....	....	No relief

food or dissolve it in a glass of water. There was no improvement in our results and we reverted to our original method of administration. Since our results were essentially negative, a period of inert medication was not used as a control; however, whenever possible, a mild but definitely active drug was given for a control period.

Some patients were already on perennial hyposensitization treatment. No patient was included in this series, however, who had not reached a plateau so far as symptoms were concerned. In no case was other

The mean value for serum sodium before administration of potassium chloride was 330.1 mg. per hundred cubic centimeters and the mean value after the potassium medication was 326.9 mg. It will be seen that in five cases the serum sodium rose slightly, in eleven cases it fell and in one case there was no change. Although

15. Butler, A. M., and Tuthill, E.: An Application of the Uranyl Zinc Acetate Method for the Determination of Sodium in Biological Material, *J. Biol. Chem.* **92**: 171, 1931.

16. Shohl, A. T., and Bennett, H. B.: A Micro Method for the Determination of Potassium as Iodate, *J. Biol. Chem.* **78**: 643, 1928.

there was a slight tendency toward lowering of the sodium values after the administration of potassium chloride, this change is not statistically significant.

The mean value of the serum potassium before administration of potassium chloride was 23.3 mg. per hundred cubic centimeters and the mean value after medication was 21 mg. In five cases the serum potassium rose and in ten it fell. The series is not large enough for this apparent difference to be statistically significant, although the results apparently conform, at least in ten of the fifteen cases, with the results of Rusk, Weichselbaum and Smogyi.¹² However, since approximately 95 per cent of the blood potassium is carried in the cells, it is well not to attach too great significance to slight changes in serum potassium values. A slight degree of diffusion from the cells could greatly modify the serum values for this ion. We attempted to minimize this possibility by centrifuging the blood samples within thirty minutes of venipuncture.

In one case the serum concentration of both ions was determined immediately before and thirty and ninety minutes after the ingestion of 2.5 Gm. of potassium chloride in the fasting state. No significant change in the concentrations of either ion occurred.

In thirteen cases the blood cholesterol was determined before potassium chloride therapy and in five of these the determination was repeated at the termination of this therapy. No significant change was noted.

In this group of forty cases there were twenty-six of hay fever, five of vasomotor rhinitis, seven of bronchial asthma, two of migraine, two of gastrointestinal allergy, five of urticaria and one of exfoliative dermatitis. The clinical results may be summarized as follows: definite relief, one case; apparent improvement which, however, was maintained after medication was discontinued, four cases; questionable improvement, five cases; symptoms increased, two cases, and no effect, twenty-eight cases.

Six patients reported marked gastrointestinal discomfort; three of them were able to continue by modifying the method of administration of potassium chloride, whereas the other three refused or were unable to continue.

COMMENT

After our failure to duplicate the results of Bloom and of Abt in our initial cases, our chief objective in this work has been to discover if possible the factor or factors responsible for these divergent results. Condensed data regarding these patients have been given in the table in the hope that some one may discover some essential difference in the procedure, in the type of patient treated or in some other factor which might explain these apparently contradictory results. Reports from localities as different as Tucson and Chicago are favorable and from localities as far removed and different as New York and San Diego, are unfavorable.

In our series only one patient apparently experienced clearcut relief from potassium chloride therapy. Examination of the data regarding this patient reveals only one possible essential difference, namely that this was his first attack and that the symptoms had been present for only six days previous to the administration of potassium chloride. In one case of urticaria in which symptoms had been present for only five days prompt relief was experienced after the first dose of medication, but when potassium chloride was discontinued four days later no recurrence of symptoms occurred. However, there is no indication in the articles of Bloom and of Abt that treatment was confined to early cases, although most of Abt's patients were children.

An essential point is the question of appropriate dosage. Present experimental evidence indicates that the potassium of food is as readily available for absorption as is the potassium in a soluble inorganic salt. Wilder and his associates¹⁷ state that their diets for patients with Addison's disease, which are especially arranged for low potassium content, contain approximately 1.6 Gm. of potassium daily. This is equivalent to 3 Gm. of potassium chloride. Sherman¹⁸ gives 3.39 Gm. of potassium (the equivalent of 6.5 Gm. of potassium chloride) a day as the average of 100 American dietaries, with variations of from 1.43 to 6.56 Gm. a day. Sister Mary Victor¹⁹ gives from 4 to 5 Gm. a day as the potassium content of the average normal diet but states that this amount may be more than doubled by a liberal use of foods rich in potassium. Five Gm. of potassium is equivalent to 9.5 Gm. of potassium chloride. It will be seen that, if this value is doubled, the addition of 1 Gm. of potassium chloride a day modifies the potassium intake by slightly more than 5 per cent. On 3 Gm. a day the patient's intake would be modified by 33 1/3 per cent. It is rather surprising that dramatic therapeutic results have occurred from a procedure which alters the potassium intake from 5 to 33 1/3 per cent, whereas it is conceivable that the potassium intake could be modified as much as 400 per cent by inadvertent dietary selection. Although this would be an extreme variation, it is quite probable that daily variations of at least 50 per cent are not at all unusual. Nevertheless the favorable results of Bloom and of Abt followed the relatively small dose of 1 Gm. daily. It is true that the dosage of potassium chloride is limited by the gastrointestinal tolerance of the patient. However, Rusk and Kenamore gave from 4 to 6 Gm. daily. Cohen gave the same amount. Stoesser and Cook were apparently able to give from 6 to 10 Gm. to children. The logical procedure would certainly seem to be to administer large doses of potassium chloride and to restrict the sodium intake even though favorable results have been reported with much smaller doses of potassium chloride.

Alexander²⁰ has stated that potassium may stimulate both cholinergic and adrenergic fibers. It may be that in some way some factor so far overlooked which has influenced the effect of the potassium on one or the other of these groups of fibers has entered into the various studies of this question.

Feinberg and Bernstein²¹ comment that sometimes any alteration in the allergic patient's physiology will result in temporary benefit.

Possibly a more logical hypothesis would be that the potassium and/or sodium intake of patients in different localities varies greatly, regardless of the amount administered as such in the form of medication. A chemical analysis of the tap water in San Diego revealed about 1 grain (67 mg.) of sodium chloride and one-fifth grain (13 mg.) of potassium chloride per liter of water. Thus the total potassium intake from this source is not sufficient to modify results either way. Another possibility is the variation in the potassium content of fruits and vegetables grown on land to which large amounts of potassium-containing fertilizer is added. It should be

17. Wilder, R. M.; Snell, A. M.; Kepler, E. J.; Rynearson, E. H.; Adams, Mildred, and Kendall, E. C.: Control of Addison's Disease with a Diet Restricted in Potassium: A Clinical Study, *Proc. Staff Meet. Mayo Clin.* 11: 273-283 (April 29) 1936.
18. Sherman, H. C.: *Chemistry of Food and Nutrition*, ed. 5, New York, Macmillan Company, 1937, p. 246.
19. Mary Victor, Sister: A Diet Restricted in Potassium, *J. A. Dietet. A.* 14: 759-772 (Dec.) 1938.
20. Alexander, H. L., in discussion on Wenner and Buhrmester.
21. Feinberg, S. M., and Bernstein, T. B.: Asthma and Hay Fever: Review of Literature for 1938, *J. Allergy* 10: 283-307 (March) 1937.

noted, however, that the foods relatively high in potassium are soups, gravies, meats, whole grain cereal products and certain condiments and not, on the whole, fruits and vegetables.

Perhaps it is the large day-to-day variation in the potassium content of the diet which has produced such apparently contradictory results in potassium chloride therapy. This may, in fact, account for a part of the apparently erratic daily variations in allergic disorders.

SUMMARY

A review of the various hypotheses on which sodium and potassium therapy of allergy has been based, and a critical study of the divergent results obtained by such therapy by different workers, fail to reveal any definite reason for the variance of published results.

In a clinical study of forty patients with miscellaneous forms of allergy, chiefly hay fever, who were treated with potassium chloride, negative or questionable results were obtained in all but one case. The serum sodium was determined before and after the medication in eighteen of these patients. In fifteen of these the serum potassium was also determined. No significant alteration in the concentration of either ion was found.

2001 Fourth Avenue.

Clinical Notes, Suggestions and New Instruments

TREATMENT OF TRAUMATIC THROMBOSIS OF THE BRACHIAL ARTERY BY INTERMITTENT VENOUS OCCLUSION

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Early descriptions of a "reactive hyperemia" are found in the writings of Cohnheim¹ and Lister.² This phenomenon displays itself in a bright blush of the skin with an increased volume of the pulse after an obstruction to the circulation has been released. They believed this reaction to be due to a vasomotor paralysis of the nerves produced by the obstructing tourniquet. This view was proved to be untenable by Bier.³ He showed that all connections between the limb and the body could be severed excepting the artery itself and the reaction would still occur. He stated that a collateral circulation could be established in areas to which the vessels had been occluded by promoting a reactive hyperemia. Lewis and Grant⁴ studied the effects of vascular occlusion and found that there resulted an increase in arterial amplitude following the release of vascular occlusion. They showed that the deep blood vessels as well as those of the skin were affected by this reaction and that the reaction was due to vasodilatation of the arterioles. It was further demonstrated by them that the reaction could be produced by compressing only the veins. Following this lead, Collens and Wilensky⁵ used intermittent venous occlusion for the treatment of thrombo-angiitis obliterans, arteriosclerosis obliterans and indolent ulcers with gratifying results. Venous occlusion was accomplished by placing a pneumatic cuff around the proximal portion of the affected extremity. The cuff was inflated to a pressure approximating the arterial diastolic pressure constricting the venous flow. This pressure (approximately 80 mm. of mercury) was maintained for two minutes and then released for two minutes. This cycle was continuously repeated so that the final result consisted of alternating periods of venous congestion and release of congestion. The period of continuous

treatment varied from twenty-four hours to two weeks, depending on the results obtained in each case.

Paine and Levitt⁶ have recently reported the use of intermittent venous occlusion in the treatment of thrombophlebitis of the lower extremities. Eleven patients were treated and all showed improvement.

We have recently used this form of therapy on patients with acute traumatic thrombosis of the brachial artery with success. Since no reference can be found in the literature in which such a condition has been managed in this manner, it was thought to be of enough interest to report.

REPORT OF A CASE

W. W., a man aged 39, entered the hospital at 10:30 a. m., June 12, 1939, immediately after he had been injured. He had been holding a trunk on the running board of a car with his right arm. A truck collided with the car, crushing the patient's arm. There was complete paralysis and loss of sensation of the right hand and forearm. The radial pulse could be faintly palpated, but comparison with the left radial pulse showed it to be much diminished. The right hand and forearm were warm and of normal color. Approximately 2 inches below the anterior axillary fold there was a ragged laceration which extended diagonally across the anterior medial surface of the upper arm. The skin and biceps brachii muscle were completely separated, exposing the brachial artery, the ulnar and medial nerves, and the basilic vein. All the tissue in this area was contused and ecchymotic. A faint pulsation of the brachial artery could be seen at the time the wound was first examined, but by the time the wound had been thoroughly irrigated with saline solution all pulsation had ceased below a point at which a thrombus could be made out by light palpation. Owing to the crushing injury received by the artery it was deemed inadvisable to remove the thrombus, as it appeared certain that operative trauma would be followed by further thrombus formation. To aid the collateral circulation the basilic vein was ligated with O chromic catgut. A débridement of the wound was done and the tissues were approximated in layers. The arm was placed in flexion and held in this position by a plaster splint. By evening of the same day the hand was pale and cold. No sensation or motion had returned. On the morning of June 13 the hand and forearm were cyanotic; the fingers were stiff and had a cadaveric appearance. About 3 p. m. the patient and his family were advised that he would in all probability lose his forearm and hand. Immediately after this the intermittent venous occlusion was begun. A pneumatic cuff attached to a sphygmomanometer was placed as high as possible on the arm and the pressure in the cuff was raised to 80 mm. of mercury for two minutes, followed by a two minute period of deflation of the cuff. This procedure was carried on continuously until the late morning of June 15. The hand was again examined on the morning of June 14, and although the hand and fingers were dusky the color was somewhat improved. The hand was slightly warmer; the radial pulse was still absent but it appeared that gangrene might be avoided. By that afternoon the hand was definitely improved. The hand was still cold and cyanotic but it seemed to be taking on more of the appearance of a living hand. The cyanosis persisted approximately a week, during which time the patient pumped the sphygmomanometer cuff intermittently every two hours for two minutes to a pressure of 80 mm. of mercury. The patient began having severe pain of the entire arm and hand on June 16. This appeared to be causalgia and for this reason 10 mg. of vitamin B₁ was given hypodermically three times a day, without relief.

The patient has been observed over a period of three and a half months at this writing, and the radial pulse has never returned. There was a separation of the biceps muscle with drainage from the wound first noted on the tenth postoperative day. The hand and forearm, however, have assumed a normal color and temperature, and normal function of the hand and forearm is now present.

COMMENT

It seemed apparent that this patient was doomed to lose his arm as a result of the injury. The hand and forearm were

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4. Lewis, Thomas, and Grant, R. T.: Observations on Reactive Hyperemia in Man, Heart 12: 73 (June) 1925.

5. Collens, W. S., and Wilensky, N. D.: The Treatment of Peripheral Obliterative Arterial Diseases by the Use of Intermittent Venous Occlusion, J. A. M. A. 107: 1960 (Dec. 12) 1936.

6. Paine, J. R., and Levitt, George: The Treatment of Thrombophlebitis of the Deep Veins of the Lower Extremities with Intermittent Venous Occlusion, Surgery 5: 707 (May) 1939.

cold, cyanotic and pulseless and were growing progressively worse. Intermittent venous occlusion was instituted as a last resort to stimulate any collateral circulation that might exist. After fifteen hours' continuous treatment we were surprised to see the improvement that had occurred. The hand was warmer, and although cyanosis was still present the appearance was more that of a living hand. The sphygmomanometer cuff was placed just above the injured area and it may have been a factor in the later separation of the muscle. It is possible that the arm may have recovered without this type of therapy, but the dramatic response in an ischemic arm which appeared destined for gangrene was most convincing, and we feel that the intermittent venous occlusion was the factor responsible for the improvement.

Although the observation has been made that the reactive hyperemia becomes more pronounced by increasing the environmental temperature (Lewis and Grant), this was thought inadvisable. This premise was based on the work of Allen,⁷ which showed that asphyxiated peripheral tissues can survive for longer periods at room temperature than if exposed to elevations of temperature. In fact, according to his experiments we would have been justified in placing the injured arm in ice packs until there was evidence of the presence of collateral circulation.

SUMMARY

In the case of traumatic thrombosis of the brachial artery here presented it seemed apparent that the extremity would be lost, owing to impending gangrene. Marked improvement in the circulation followed the application of intermittent venous occlusion, with recovery of the ischemic extremity.

130 South Scott Street.

BB SHOT IN THE VERMIFORM APPENDIX

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There are a number of reports of BB shot in the appendix, particularly in the English literature. The finding of one or two shot in the intestinal tract is quite common during the hunting season, but large collections of shot in the appendix are infrequently seen. The following case is reported to illustrate the value of fluoroscopy in addition to x-ray films for the diagnosis of this condition:

E. O., a man aged 32, was admitted to the hospital because of a severe acute back strain. X-ray examination of the lumbo-



Fig. 1.—Specimen removed at operation.



Fig. 2.—Appendiceal area in A, spine roentgenogram, and B, with pressure applied under fluoroscopy.

sacral area revealed as an incidental condition in the right lower quadrant a shadow of metallic density which was irregular in outline. The suspected diagnosis of BB shot in the appendix was established by the roentgenologist when he was able to separate the shot by pressure over the appendix during fluoro-

scopic examination, as shown in figure 2. The patient stated that he had experienced occasional attacks of discomfort over the appendix but that he had never consulted a physician over that complaint. He eats from ten to twenty ducks and prairie chickens each year. Complete examination of the blood was negative.

The appendix was removed at operation. It was considerably enlarged and weighed 9.8 Gm., containing thirty-eight number 10 shot and numerous flakes. All the shot had been fired. The wall of the appendix was very thin in three spots, where considerable pressure apparently had been exerted by shot. The patient made an uneventful recovery.

Earl Clinic.

COMPOUND DISLOCATION OF THE TESTIS

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Compound dislocation of the testis is a term coined by Alyea in 1929 to describe the traumatic extrusion of the testis from the scrotum through the skin. It is an accident of extreme rarity. However, there has been an increased frequency in the past decade, and further incidence may be expected owing to automobile and airplane accidents. The universal causative factor is a terrific blow to the scrotum countersustained by the pelvis.

Alyea was able to find in the literature only three cases, of which he added one of his own. Pomeroy² reported a case in 1935. Herbst and Polkey³ in 1936 cited twenty-seven cases from the literature but unfortunately included avulsions, sloughs, lacerations, operative blunders, gunshot wounds and the like. Careful search of the literature reveals only ninety-seven cases of traumatic dislocation of the normally descended testis of all types, and of these only five seem to be true compound dislocations.

To this number we add the following case:

REPORT OF CASE

History.—C. W., a white man aged 36, was admitted to the Columbus County Hospital Dec. 16, 1939, following an automobile accident, the details of which could not be obtained. However, the ambulance driver related that the automobile which the patient was driving left the highway and ran into a tree. The other occupant of the car was killed instantly. Judging from the physical examination one would surmise that the patient had been thrown astride the gear shift lever.

Examination.—The patient was well developed and fairly well nourished, unconscious and in considerable shock, with the odor of alcohol on his breath.

The head had a superficial laceration over the right frontal region about 4 cm. in length. There was slight bleeding from the wound. No depressions of the skull were noted.

The pupils were round, regular, dilated and equal and reacted sluggishly to light.

The canals of the ears were clean. The tympanic membranes were intact and there was no hemorrhage.

There was a compound dislocation of the right testicle. The epididymis was in its normal relation to the testicle. The testicle, epididymis and some 2 cm. of the cord had ruptured through the tunica vaginalis and all covering layers and had erupted through the skin. The opening in the skin was on the right lateral side of the scrotum 3 cm. below the external inguinal ring. The opening measured about 1.5 cm. There was little or no bleeding. There was some ecchymosis of the right side of the scrotum surrounding the laceration. The left testis was in its normal position in the uninjured left side of the scrotum. The penis was normal. There were abrasions over both knees and contusions and abrasions about the left ankle.

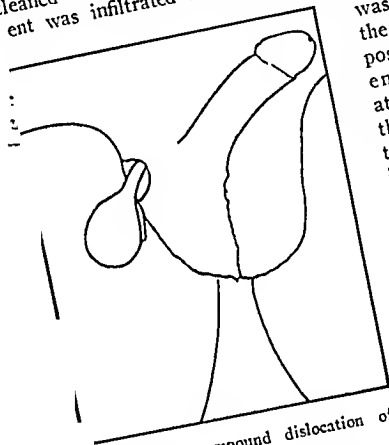
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2. Pomeroy, E. S.: *J. Urol.* 34: 43 (July) 1935.
3. Herbst, R. H., and Polkey, H. J.: *Am. J. Surg.* 31: 18 (Oct.) 1936.

X-ray examination revealed transverse fractures of the superior and inferior rami of the right pubic bone with very little displacement of the fragments, and a Pott's fracture of the left ankle with slight displacement. These fractures were not diagnosed at first. X-ray films revealed them after the patient gained consciousness and complained of pain at the fracture sites.

Treatment and Course in the Hospital.—After about three hours the patient's mind began to clear. He became very restless, complaining of pain in the lower part of the abdomen, pelvic region and left ankle. Because of shock, no attempt was made to reduce the testicle until twenty-four hours had elapsed. During this time it was necessary to administer stimulants; 10 per cent dextrose in physiologic solution of sodium chloride was given intravenously. Catheterization was required for the first twenty-four hours. Only clear urine was obtained. After twenty-four hours the patient's general condition improved.

Reduction.—The genitals were prepared by shaving and cleaning with tincture of green soap and water. The scrotal skin about the wound was painted with a germicide and the testicle cleaned with solution of hydrogen peroxide. Metycaine 1 per cent was infiltrated about the margin of the wound and into the cord. An attempt was then made to replace the testicle in its normal position. Difficulty was encountered while an attempt was made to slip the testicle back through the opening and down into the right side of the scrotum. The opening in the skin was large enough but the opening in the other testicular coverings (tunica vaginalis) could not be located. Our first thought was to enlarge the openings to facilitate replacement of the testicle. This, however, was unnecessary.



Sketch of compound dislocation of the testis.

One of us (J. M.) suggested a maneuver which we have not seen described in the literature: First the testicle is pushed through the opening in the skin, then pressed upward to the external inguinal ring, and the last motion is downward to the proper side of the scrotum. These steps were followed and the testicle slid back into its normal position with ease. A rubber tissue drain was placed in the right side of the scrotum. The subcutaneous tissue was closed with No. 1 plain catgut and the skin with interrupted sutures of fine black silk. A dry dressing was applied with light pressure. Following reduction, the patient had no pain in the testicle. The left foot and leg were placed in a plaster cast.

Convalescence.—On December 18 a small area of pneumonic consolidation developed in the left lower lobe. December 23 the process was repeated in the right lower lobe. Sulfapyridine therapy resulted in prompt recovery by December 28. Meanwhile the scrotal wound healed rapidly. The drain was removed on the second postoperative day and the sutures on the eleventh hospital day. The patient was discharged from the hospital on the thirteenth hospital day, December 28.

One week later he was treated at the hospital for a malarial flare-up. At this time the scrotal wound was entirely healed and the testicle was in good position and not painful. Atrophy was not apparent.

Columbus County Hospital, Whiteville, N. C.

The Ultimate Meaning of Research.—The ultimate meaning or purpose of medical research is to rid man of diseases, to protect them from maladies with which they are threatened, to relieve them of discomforts once they are established.—Cohn, Alfred E.: *The Meaning of Medical Research*, in *Landmarks of Medicine*, New York, D. Appleton-Century Company, 1939.

Experiments have demonstrated that androgens and estrogens¹ and certain vitamins² are absorbed through the intact skin with the possibility of causing systemic effects similar to those observed after the injection or ingestion of these substances. The percutaneous absorption of estrogens may exert a profound influence on the anterior hypophysis and on the ovaries, producing disturbances in the menstrual cycle and changes in the mammary glands and in the reproductive and genital organs. It has been proved that in animals the sex hormones can induce proliferation of cells³ in the tissues which they affect, the gradient development of which results frequently in cancer. These reactions indicate a potential danger to normal persons who use cosmetics which contain active therapeutic substances used in the practice of medicine to produce systemic changes.

The use of vitamins in creams, lotions and soaps has caused controversy⁴ concerning their efficacy in cosmetic preparations. While it may be true that vitamins A and D can be absorbed through the unbroken skin, there is no conclusive evidence⁵ that they affect the sex tissues. It is questionable whether the small⁶ amount of vitamins that could be absorbed from cosmetics would produce any systemic effects in human beings. Vitamins in soaps are of questionable value⁷ because of the small quantity of vitamins in the soap solution and the brief interval of contact with the skin. It has been mentioned that a residue⁸ remains on the skin after rinsing, but the effectiveness of the vitamins that could be absorbed from this source is doubtful.

Hypervitaminoses resulting from overdosage have frequently been reported. Skin manifestations¹⁰ have been observed from the ingestion of vitamins in excessive amounts. Symptoms of vitamin D poisoning¹¹ have followed the topical application of vitamin D ointment on the skin of normal rabbits.

It is interesting to note the relationship between hormones and vitamins. There is a close chemical structural similarity¹² between the estrus-producing substances derived from the ovarian follicles, the testis hormones, the carcinogenic hydrocarbons, and a whole series of other biologically important substances such as cholesterol, bile acid, ergosterol and vitamin D.

- The authors were assisted by Arthur H. Kahn, chemist.
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Regarding this, Murlin¹³ states: "We are able to demonstrate startling similarities, not only between the various hormones themselves, but also between hormones and vitamins, structurally and functionally."

The widespread and uncontrolled use of therapeutic agents such as hormones and vitamins in cosmetics makes it necessary to determine their margin of safety and their efficacy when used in this manner.

PERMEABILITY OF THE SKIN

A review of the literature on absorption reveals a mass of evidence definitely proving that numerous substances when applied to the unbroken skin can be absorbed, producing systemic effects.

It must be understood, however, that penetration into or through the skin can occur without absorption into the circulation. There would be much less confusion in the literature if, when referring to skin absorption, the meaning were more clearly indicated; that is, into the skin or through the skin, with or without absorption into the blood stream.¹⁴

Over a century ago the absorptivity of the skin was recognized. Mussey¹⁵ in 1809, experimenting on his own skin, proved absorption by substances found in the urine.

In 1901 Reilly,¹⁶ reviewing the literature and adding his observations, emphasized that many medicinal agents applied to the unbroken skin would produce therapeutic effects. He mentioned constitutional effects of belladonna from plasters containing the drug; salivation from mercury inunction; systemic effects from cutaneous applications of pilocarpine mixed with lard, and finding in the urine iodine, salicylic acid, turpentine, guaiacol, creosote and phenol (carbolic acid) resulting from percutaneous absorption. He also mentioned the usefulness of inunction with cod liver oil in scrofulous conditions.

Pels¹⁷ cites Unna, who, more than twenty-five years ago, made studies of the chemistry of the skin and concluded that "certain few solid and liquid substances (caustic acids and alkalis, phenols) as well as all gaseous and vaporous bodies, can penetrate the skin, and contrariwise, all soluble, indifferent substances, such as neutral salts, cannot."

While there may be some controversy¹⁸ concerning the absorption or penetration of ointment bases such as those made of liquid petrolatum, linseed oil, hydrous wool fat, cholesterol, cottonseed oil, lard, almond oil or olive oil, their function as a fixative insures long-lasting contact with the surface to which they are applied, permitting the absorption of chemical substances incorporated in them. Macht's¹⁸ experiments showed that the essential or volatile oils are most readily absorbed through the intact skin. Cornbleet,¹⁹ in discussing Macht's article, stated that "there is some evidence at the present time that cholesterol and like products are excreted to the surface of the skin and then reabsorbed. In this way, perhaps, many substances are excreted and finally reabsorbed after modification."

In a study of permeability and absorptivity of the skin^{19a} we found that: (a) fats permeate the skin and do so in a large measure along the hair shafts and into the oil gland ducts; (b) liquid fats permeate the skin more rapidly than solid fats; (c) animal fats show the greatest depth of penetration, with vegetable fats next and mineral fats least; (d) most of the fats show optimum penetration between four and six hours after application. After six hours, the quantity of fat in the deeper tissues appears to diminish.

Deaths have occurred shortly after the absorption of phenol²⁰ and salicylic acid²¹ through the unbroken skin. Iodine²² poisoning has also been observed following topical applications. These reports attest the rapidity with which certain toxic substances are absorbed percutaneously. Gottlieb and Storey²⁰ described renal damage following phenol dressings. They mentioned the fact that certain persons may be extremely sensitive to phenol, with violent and even fatal reactions from minute doses shortly after application.

Since the basis of many so-called skin-peeling formulas is phenol, a word of warning may be mentioned regarding the dangers of applying it to such a large area of skin as the face.

Rothman²³ stated that the skin of most animals is permeable by lipid-soluble substances such as salicylic acid, alcohol, ether and chloroform. In his opinion it is questionable whether hydrous wool fat penetrates the skin sufficiently to be absorbed systemically, though it is quickly absorbed by the keratin layer.

Miyazaki²⁴ gives a long list of substances which can be absorbed through the skin and demonstrated in the urine, blood and tissues: atropine, pilocarpine, quinine, strychnine, cocaine, epinephrine, camphor, chrysarobin, pyrogallol, phenol, antipyrine, phlorhizin, balsam copaiba, oil of cloves, bergamot, ferric chloride, lead acetate, arsphenamine, bismuth lactate, colloidal sulfur, potassium iodide and salicylic acid. He found that they were more readily absorbed in solution than in an ointment base. He states that the fatty acids and products of saponification do not penetrate the skin and that fats which penetrate do not become saponified in the skin. He believes that the absorption of these substances takes place through the epidermis and not through the sebaceous glands.

According to Bürgi,²⁵ all medicaments and poisons in a dissolved form can penetrate the skin, and lipid soluble substances are more penetrating than the water soluble. He points out that certain hormones are lipid soluble, which he further concludes is not absolutely necessary for percutaneous absorbability.

Perutz²⁶ stated that the skin is pervious to lipid soluble substances. He cited Meyer-Overton's lipid theory that the greater the solubility of a substance in lipoids compared to the solubility in water the more easily absorption takes place.

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COSMETICS—ELLER AND WOLFF

The permeability of the skin to aqueous solutions of salts was demonstrated by Kahlenberg.²⁷ Bathing of hands²⁸ for from two to three hours showed absorption of a 2 per cent potassium iodide solution, proved by Major and Delp.²⁹ concluded that there was absorption of appreciable amounts of insulin through the undamaged skin. Their observations of a series of diabetic patients showed a fall in blood sugar in approximately 50 per cent of the patients. The insulin was applied to the skin of the anterior aspect of the thigh (the area was not shaved) after preliminary treatment with glycerin. They also reported similar results in rabbits. Hermann and Kassowitz³⁰ proved beyond doubt the permeation of insulin but said that it was questionable whether an exact dose could be given in this manner, and for this reason they recommended subcutaneous injections for clinical use. Lasareff and his associates³¹ applied petroleum, benzene, ether and acetone to the skin of the ears and paws of rabbits and found that some of these substances were absorbed into the blood stream.

Matschak,³² investigating the percutaneous absorption of salicylic acid and sodium salicylate from stearin ointments, hydrous wool fat and petrolatum, stated that the interrelationship between the lipoids of the skin and the lipoids of the ointment base, and the diffusion of the drugs between these, influenced the rate of absorption. Fuchs³³ applied an ointment containing arsenic for from fourteen to thirty-seven days on the skin of patients suffering from inoperable cancer. Arsenic was demonstrated in the liver, brain, heart, kidneys, spleen, lungs, intestine and gallbladder, and in the bile. Walton and Witherspoon³⁴ showed the easy permeation, through the skin, of gases such as hydrogen sulfide, carbon dioxide and chlorine. Inunction with oils³⁵ containing sugars led to an increase of the sugar content in the blood and urine of diabetic and normal persons. Stejskal³⁶ found lactose percutaneously absorbed in the urine of patients having slight disturbances of carbohydrate metabolism.

Moore, Lamar and Beck,³⁷ reporting on the effects of androgens and estrogens when applied to surfaces of the skin, stated "there is yet a lack of appreciation of the readiness with which substances are taken up by the skin and become effective in the body." eleven years ago, applied Hume, Lucas and Smith,² irradiated skin of rabbits and rats and concluded that sufficient vitamin D was absorbed to prevent rickets. The following sections give details of recent investigations which prove beyond doubt that certain vitamins

and hormones contained in cosmetics can be absorbed through the unbroken skin with effects similar to absorption by other routes.

ABSORPTION OF ESTROGENIC SUBSTANCES

Zondek¹ in 1929 found that he could induce estrus in a castrated mouse by rubbing a follicular hormone contained in oil or ointment into the shaved skin of its back. To obtain this effect it was necessary to use a quantity seven times greater than that used for subcutaneous injection. More recently, however, he proved that the same amount of the substance absorbed percutaneously can produce results identical to those following injection if applied in a tincture of alcohol, ether or benzene. The more readily the solvent is absorbed through the skin, the more easily does the estrogen exert its effect. His animal experiments proved that the estrogens are readily absorbed from local applications and produce systemic effects. Zondek further demonstrated this in human beings. An alcoholic solution (96 per cent) of estrone was rubbed into the skin of twelve patients having amenorrhea. In eighteen menstrual cycles bleeding was induced ten times, although the mucous membrane did not show the typical picture of the premenstrual phase. Of the eight failures, three of the patients were subsequently treated by injection with good results. Zondek emphasizes that injections of estrogen are not always successful and cites an exemplary case. He finds percutaneous hormone therapy to be simpler and more agreeable to the patient, especially for long-continued treatment. Silberman, Radman and Abarbanel,^{37a} after preliminary studies, feel that the subcutaneous implantation of pellets of crystalline testosterone propionate for menopausal symptoms will eventually supplant the other methods of administering the substance except possibly in mild cases.

Moore, Lamar and Beck,³⁷ who experimented on rats and guinea pigs with androgens and estrogens, came to the following conclusions:

1. Testosterone and t-propionate applied on the skin as an ointment is readily absorbed and either maintains the accessory reproductive organs of castrate males in a normal reproductive state or stimulates their development precociously in the young, or decidedly above the normal levels in adults. 2. These androgens, so administered, exert effects similar to those obtained following subcutaneous injections. They (a) maintain reproductive accessories in castrate males at all ages, (b) reconstitute castrated guinea pigs within seven days treatment to a state of producing coagulable ejaculates on electrical stimulation of the head, (c) produce injuries to testes of normal growing young male rats. 3. Face cream (stated to contain estradiol), sold commercially and recommended for the removal of wrinkles from normal women, has decided internal effects when applied daily on the skin of experimental animals. Such treatments (a) stimulate mammary development on normal male guinea pigs, (b) induce cornified vaginal oestrous smears in spayed female rats, (c) maintain or increase normal growth of the uterus in young or mature spayed rats, (d) in young male rats reduce testis weight by 80 per cent and seminal vesicle weight by 90 per cent in comparison with normal litter mates. 4. These results both emphasize the efficiency of applying hormones in a skin ointment and at the same time suggest caution in the use by normal persons of articles containing these active principles.

Further observations indicated that the absorption rate of hormones varies with the different oils and con-

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33. Fuchs, L.: *Permeabilität der Hautdecke.* Zentrabl. f. Haut- u. Geschlechtskr. 26:315, 1925.
34. Walton, J. K.: *Lactose Absorbed Through the Skin.* Cutaneous Absorp. u. Geschlechtskr. 26:315, 1925.
35. Stejskal, K.: *Lactose Absorbed Through the Skin.* Cutaneous Absorp. u. Geschlechtskr. 26:315, 1925.
36. Stejskal, K.: *Lactose Absorbed Through the Skin.* Cutaneous Absorp. u. Geschlechtskr. 26:315, 1925.
37. Moore, C. R.; Lamar, J. K., and Beck, Naomi: *Cutaneous Absorption of Sex Hormones.* J. A. M. A. 111:11 (July 2) 1938.

- 37a. Silberman, David; Radman, H. M., and Abarbanel, A. R.: *Use of Testosterone Propionate in Treatment of Menopausal Patient: Preliminary Report on Use of Pellets of Crystalline Testosterone Propionate.* Am. J. Obst. & Gynec. 39:332 (Feb.) 1940; abstr. J. A. M. A. 114:1590 (April 20) 1940.

centrations and that there is good evidence of greater effectiveness of testosterone when applied to the skin as an ointment than when injected subcutaneously in small quantities of sesame oil:

It is presumed these phenomena reveal a more gradual and continuous absorption through the skin than occurs when administration is by subcutaneous injections. . . . The ease with which skin ointments containing hormones are applied and the tremendous influence these substances have when taken into the body more or less continuously present the possible menace that would apply to any powerful drug which is easily procured and administered. . . . Where hormone therapy is indicated, administration as skin ointments may prove to be the method of choice.

Baer^{37b} applied to the skin of spayed rats estrogenic substances contained in hydrous wool fat, petrolatum and olive oil. He observed that there was no appreciable difference in the time required for estrus to develop, irrespective of the vehicle used. He further concluded that the follicular hormone is not stored in the skin, since a minimal daily dose was necessary in order to maintain estrus.

Ito and his co-workers³⁸ used female rats and rhesus monkeys in their experiments. They shaved the necks of the animals and applied varying quantities of menformon-folliculin (Organon's theelin). Precaution was taken to prevent the possibility of oral ingestion. The applied substances were permitted to remain on the skin for eight hours. The residue was then washed off with benzene. The experimental animals were exposed to this treatment for a number of weeks. Definite effects of estrone were noted in the enlargement of the uterus and of the mammary glands as well as a marked reaction in the estrous cycle. A comparison of various carriers for estrone showed the following order of absorption: first, 60 per cent alcohol; second, hydrous wool fat, and, third, petrolatum. The same quantities of estrone which when applied to the skin had produced pronounced physiologic as well as pathologic reactions were subsequently given orally. Ito concluded that application to the skin resulted in more effective reactions.

Smith^{38a} states that "the skin of the monkey is highly absorptive, and in fact the androgens and estrogens seem to be more effective when applied to the skin than when injected."

Loeser³⁹ produced estrus in castrated monkeys by rubbing follicular hormone into the skin. In women suffering from ovarian insufficiency because of the removal of the ovaries, menstruation could be produced by cutaneous applications of the hormones. In women with normal ovarian function, Loeser found that the skin is penetrable to a degree varying with the individual.

David, Freud and de Jongh,⁴⁰ as a result of comparative studies with eleven pure estrogenic substances, concluded that they all cause thickening and cornification of the vaginal stratified epithelium and a change from the columnar epithelium to the stratified type

in the seminal vesicles and prostate of the castrate. They consider estrogenic substances to possess three pharmacologic actions on the secondary sex organs of both sexes; namely, (a) stimulation of growth of smooth muscle tissue and interstitium; (b) stimulation of submucosa and stratified epithelial growth; (c) stimulation of growth of submucosa and undifferentiated cylindrical epithelium in nontubular organs.

Werner and Collier⁴¹ reported that daily injection of theelin in five surgically castrated women over periods of from eighty-nine to ninety-three days resulted in repeated uterine bleeding during the treatment. In addition, such benefits as alleviation of symptoms of the menopause were noted. The cervix increased in vascularity, the endometrium showed hyperplasia in the normal intermenstrual but not in the premenstrual phase, and the breasts were enlarged.

Dessau's⁴² experiments showed that daily injections of estrone, estradiol or estriol into immature guinea pigs (castrated or normal) caused proliferation and metaplastic changes of the uterine epithelium. These changes were inhibited by corpus luteum hormone.

Ziskin,⁴³ investigating the effect of hormones on the mucous membrane of the mouth, came to the following conclusions:

1. The hormones progynon B and follutein injected respectively into women in the treatment of amenorrhea and prolonged menstrual bleeding affect the gingivae and oral mucous membranes.
2. Progynon B injections cause hyperkeratinization and hyperplasia of the oral epithelium.
3. The gums of women receiving progynon B are uniformly in a healthier state than those receiving follutein.
4. The gums of women receiving follutein show evidence of inflammation and degeneration both grossly and microscopically.
5. The Vincent's infection reported in one case was probably predisposed by hormonal treatment.
6. Follutein probably exerts its influence directly on the gums and oral mucous membranes.

Sylla^{43a} administered "testiviron" in men and "progynon" in women in small doses (two 25 mg. doses of "testiviron" or two 50,000 unit doses of "progynon"). He reported an increased reaction against tuberculin injections, also against other allergens, and a decrease in the latent period of dermatographism with increase in the redness.

Sabrazès, Le Chuiton and Gineste⁴⁴ have observed that the injection of estrogenic substance from the urine of pregnant women excites the glandular apparatus of the skin and may cause hyperplasia of the glands. Since the nipple is a part of the accessory sex organs, and the apocrine sweat glands and sebaceous glands seem to have some relationship to the sex function, it is not surprising that all these have a local reactivity to substances which influence the biologic activity of the gonads.

Lacassagne,⁴⁵ experimenting with the administration of estrogen to rats, rabbits and guinea pigs, found that it caused a distinct retardation in growth, cryptorchidism, early epidermoid metaplasia, and abscess formation

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in the prostate, retention of urine, hydronephrosis, pyo-nx and pyometria.

Arrows and Kennaway⁴⁶ reported that they observed enlargement and anaplasia of the prostate gland in mice resulting from the applications of estrone in benzene. Capuani⁴⁷ found that the follicular principle caused significant reduction of the sexual activity in man recognized by the decrease of libido and subsidence of pollutions in persons kept at enforced abstinence. Experimental animals show signs of reduced spermatogenesis, which, however, returns to normal even after excessive doses when the medication is discontinued.

Recent evidence⁴⁸ further proves that the anterior pituitary-like principle from the urine of pregnant women exerts a profound influence on the growth and function of the male genitalia. It may produce an increase in the size of the penis, scrotum and prostate in both man and animals before the age of puberty. After treating thirty-three patients for undescended testes, Thompson and Heckel found that genital growth was produced in eighteen, with more marked results in fourteen cases. In two boys aged 7 and 9 years the penis enlarged to adult size. There was, in addition, growth of the scrotum, prostate and pubic hair and marked increase in frequency of erections, a change in the pitch of the voice and, in one, development of hair on the face. Changes simulating premature puberty also occurred in a 4 year old boy. In general, increased masculinity was simultaneous with genital growth. In all cases the response to administration of estrogen was prompt. Descent was produced in only 23 per cent of the total number of undescended testes, showing that genital growth may occur without descent of the testes. Thompson and Heckel caution that "the treatment for undescended testes with the anterior pituitary-like principle should be stopped before the genital growth becomes marked."

Clinical results also show marked effects due to administration of the androgens. Vest and Howard⁴⁹ in a report on the use of this substance conclude:

The use of testosterone propionate in six cases of hypogonadism and two cases of prepuberal boys is reported. It seems to be a satisfactory replacement therapy for hypogonadism in the human. We have shown it produces profound anatomical changes resulting in the proportionate growth of the phallus, scrotum, seminal vesicles and prostate, as well as the development of pubic, axillary and extremity hair. There have been, in addition, changes in the general appearance, with improvement in the personality content. It has induced libido and potentia in individuals in whom these had not existed previously, and restored normal sex life in a patient who was impotent following castration. No evidence of increase in tolerance to the drug has been noted.

Geist, Salmon, Gaines and Walter^{49a} studied the biologic effects of androgens in women and report:

It is apparent from the observation recorded here that testosterone propionate administered in adequate doses to normally menstruating women suppresses menstruation temporarily

and induces a rapidly developing atrophy of the endometrium and vagina. . . . Thereafter in some of the women signs and symptoms develop which one may regard as androgenic; viz., amenorrhea, hirsutism, hoarseness, acne and enlargement of the clitoris—a syndrome which is reminiscent of arrhenoblastoma of the ovary or tumors of the adrenal cortex. After discontinuation of the testosterone, a restoration to normal status of the menstrual rhythm and of the histologic pattern of the endometrium and vagina occurs, and the signs of virilism recede gradually.

It is interesting to note here that in men employed in packing ampules of estrogenic material a tender swelling of the breast is apt to develop from continual handling of the estrogenic compounds.⁵⁰

Zondek¹ proved that the mammary glands are equally influenced by the same amount of hormone administered percutaneously or subcutaneously. Hormone ointment rubbed into the skin of the mammary region of a male guinea pig produces proliferation, first of the treated and then of the untreated mammary glands, which subsequently secrete milk. These results were verified by Jadassohn, Uehlinger and Zuercher (1937). They concluded that there must be a local hormone effect in addition to the hematogenous, since the locally treated mammae showed a more rapid and greater enlargement of the nipples than those which had not been treated.

Jadassohn, Uehlinger and Margot,⁵¹ further investigating the reaction of the nipples, found that "a hematogenous effect of percutaneously absorbed sex hormones (as determined by the enlargement of the not previously treated nipple) was found to be present only after application of estrone and equilin." Oily solutions of the androgens have no effect on the nipple, but aqueous solutions produce a marked nipple enlargement.

MacBryde^{51a} treated women suffering from hypogonadism and lack of mammary development with injections of 5,000 international units per gram of estradiol or estradiol benzoate. According to the records of breast growth, a threshold was reached at which growth ceased. When injections were discontinued, a rapid regression in the size of the breast was observed. When the breasts had returned to approximately their original size, a daily unilateral application was made of 5 Gm. of the estrogenic ointment. The other breast was anointed with the same quantity of the vehicle only. The latter presented only a slight enlargement, while the breast treated with estrogen showed a decided increase in size, and progressive growth was maintained during treatment. There were also evidences of an active estrous state, enlargement of the uterus and relief of hypogonadal symptoms. The results from a comparative study of these two forms of therapy were decidedly in favor of inunction, since MacBryde observed diminishing effectiveness in breast growth when the estrogenic substance was injected, whereas when it was cutaneously applied there was a steady progressive increase in size.

Burckhardt⁵² rubbed small quantities of an ointment called estroglandol, the active ingredient of which is dihydro-estrone (estradiol), into the mammae of guinea pigs. After ten days pronounced enlargement of the

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47. Capuani, G. F.: The Influence of Follicular Hormone on the Male Sexual Organs in General and on the Spermatogenesis in Particular, *Minerva med.* 1:41 (Jan. 13) 1938.
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52. Burckhardt, W.: Percutaneous Folliculin Effect on Mammary Growth of Guinea Pigs, *Swiss Society of Dermatology and Venereology*, 1936.

mammæ was observed. When treatment was discontinued, the size of the mammæ gradually decreased. It was possible to increase or reduce the size of the mammæ at will.

Fussgänger⁵³ produced growth of the comb in capons by topical application of androsterone, an androgen. The effective dose was one fiftieth of that required for injections.

These local effects resulting from direct application of active principles to the body surface have led to an investigation of their clinical usage in this manner.

Zondek¹ used the estrogenic substance for local therapy in arthritis ovaripriva with beneficial results. He was unable to apply it in cases of acne vulgaris and pruritus vulvæ because of the possible irritating effects. Jaffe⁵⁴ reported good results in pruritus vulvæ, kraurosis vulvæ, juvenile acne and other conditions more or less clearly related to disturbances or changes in the sex function. The discontinuance of the therapy, however, usually resulted in relapses. Follicular hormone⁵⁵ ointment was applied in dermatoses relating to climacteric disturbances with beneficial results.

We^{55a} have used local applications of estrogenic ointments in the treatment of kraurosis vulvæ, but the results thus far have not been encouraging.

Rust⁵⁶ reported that 75 per cent of the cases of pruritus vulvæ caused by dysfunction of the ovaries were cured by hormone therapy applied in the form of ointment and local injection.

Salmon^{56a} treated fourteen women either ovariectomized or suffering from ovarian hypofunction. He used lanolin ointment containing from 500 to 20,000 rat units per ounce. His conclusion was that more than 100,000 rat units a week is necessary to produce an effect by means of cutaneous application. In six of these patients pruritus vulvæ and vaginal symptoms were improved simultaneously with the appearance of estrus.

Frank,^{56b} who for many years used estrogenic substances locally in the treatment of kraurosis vulvæ, concluded that any improvement which resulted was merely transient. There were frequent recurrences of itching, unarrested progression of atrophy and even the appearance of carcinoma in kraurotic areas of some cases. In a personal communication April 21, 1940, Frank stated that he no longer employs estrogenic hormones for the treatment of kraurosis vulvæ or senile vaginitis. He advises vulvectomy as the best method of treatment for kraurosis vulvæ.

Mussio-Fournier and his co-workers^{56c} report 60 per cent success in the treatment of more than 100 cases of hypertrichosis by the local application of "folliculine." They believe from their limited experience that local endocrine therapy supported by other topical applications is of value in the treatment of acne. Certain menstrual abnormalities associated with the cutaneous disorder may be improved at the same time. These authors also report the pigmentation of areas of vitiligo by the local application of a pituitary preparation which activates the melanophore cells.

GLANDULAR DYSFUNCTION RESULTING FROM ABSORPTION OF ESTROGENIC SUBSTANCES

Estrogen stimulates the pituitary to the secretion of "luteinizing hormone." It has been demonstrated that estrogens including estrone, estriol, estradiol, estradiol monobenzoate, emmenin (estriol complex) and the like will cause pituitary enlargement when administered to rats of both sexes. Tumors of the pituitary resulting from prolonged treatment in rats, cutaneously and by injection, with large doses of estrogen have been observed by Cramer and Horning,⁵⁷ Zondek,⁵⁸ and McEuen, Selye and Collip.⁵⁹

Diaz, Phelps, Ellison and Burch⁶⁰ found that long-term injections of estrogen decreased the size of the ovaries, with general regression of the germinal and interstitial elements. Ovaries affected in this way responded normally to injections of gonadotropic substances. Long-term injections of estrogen caused a marked hypertrophy of the pituitary. The adrenals were not significantly changed in weight. The addition of gonadotropic substances or of massive doses of estrogen caused further hypertrophy of the pituitary and a slight hypertrophy of the adrenals. These results indicate that estrogen acts directly on the pituitary and causes, after long periods of injection, an exhaustion of production of gonadotropic substance by the gland. The ovary is not directly damaged by long-term administration of estrogen but becomes atrophic because of inadequate stimulation.

Zondek¹ showed that long-continued treatment with these substances results in elimination of the growth factor and impairment of the growth of the skeleton and certain organs. He found, however, that not all methods of cutaneous application of these substances produce the same effect. The application of these substances dissolved in benzene produced growth impairment similar to that by subcutaneous injection. Animals treated cutaneously with hormones dissolved in oil showed no impairment of growth. The administration of estrogenic substances over a period of seven months caused large tumors in the pituitary glands of rats.

In eight out of twelve mice treated with estrogen for a long period, Cramer and Horning^{57a} found the pituitary gland enlarged. Three of the mice had pituitary adenomas. They noted extensive changes in the uterus and vagina, atrophy of the testicles, degeneration of the adrenals and hypertrophy of the islands of Langerhans.

Gardner⁶¹ observed that

the estrogenic hormones have been found to induce a hypertrophy of the pituitary and a degranulation of the chromophilic cells, particularly the basophils, as well as changes in its hormone content. . . . The adrenals, thyroid, urinary tract, pancreas and several levels of the gastrointestinal tract were also studied in all or in representative mice from all the groups. Definite pathological changes have been observed in the adrenals of many animals, but such conditions were not uncommon in untreated controls. Various abnormal conditions have been noted in the urinary tract. Many of these were associated with

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56b. Frank, R. T.: *The Sex Hormones*, J. A. M. A. 114: 1504 (April 20) 1940.
56c. Mussio-Fournier, J. C.; Morato-Manaro, J., and Alhrieux, A.: *Action locale des hormones*, Presse méd. 47: 844-848 (May 27) 1939.

57. (a) Cramer, W., and Horning, E. S.: *Experimental Production by Estrin of Pituitary Tumors with Hypopituitarism and of Mammary Cancer*, Lancet 1: 247 (Feb. 1), 1936 (May 9) 1936. (b) Cramer, W., and Horning, E. S.: *Effect of Estrin on Pituitary Gland*, Lancet 1: 1056 (May 9) 1936.

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61. Gardner, W. U.: *Influence of Estrogenic Hormones on Abnormal Growths*, Cancer Problem, Symposium, 1937, pp. 67-75.

urine retention, the cause of which has not been entirely determined. . . . That changes may be found in the structures of certain endocrine glands following the injection of estrogens might be expected because certain reciprocal and indirect relationships have been experimentally demonstrated. In extended experiments, when some form of compensation may not or cannot occur, these interrelationships may be exaggerated, adding to the general complexity of the final results.

ESTROGENIC SUBSTANCES AND CARCINOGENESIS
Fieser⁶² reported that the similarity of chemical structure between the estrogenic and certain carcinogenic substances has led to the suspicion that applications of estrogens repeated for a long time may be a factor in the development of carcinomatous growth.⁶³

Loeb¹² discussed this relationship as follows:

These investigations, in defining the chemical constitution of the carcinogenic agents present in tar and that of related synthetically produced compounds, have shown the chemical relationship of such substances to a whole series of other biologically important substances, such as cholesterol, bile acids, ergosterol and vitamin D; their relationship to the testis hormones and above all to the estrus producing hormones that are derived from the ovarian follicles and are present besides in the urine of pregnant women and of pregnant mares has also been demonstrated. However, to this class of related compounds belong also substances which, as far as their biologic effects are concerned, are as far removed from the carcinogenic and estrogenic principles as the glucosidic heart stimulants strophanthin and digitoxin, and certain alkaloids (morphine, codeine, colchicine). All these substances as well as the carcinogenic agents possess the phenanthrene ring; they differ from one another in the degree of hydrogenation and in the character of polar groups and of side chains. Because these relationships between carcinogenic substances and sterols, which naturally occur in the animal organism, Kennaway⁶⁴ and Cook⁶⁵ suggested that carcinogenic derivatives similar to those obtained from tar, such as conditions arise in of 1:2 benzanthracene, might under some conditions arise in the body from sterols normally present in cells as the results of those local interferences that lead to the development of cancer.

The observations of Cook, Dodds, Hewett and Lawson⁶⁶ show a relationship between the carcinogenic substances and the estrogenic substances in the similarity of their biologic activity. Two carcinogenic hydrocarbons, namely 3:4 benzpyrene and 5:6-cyclopenteno-1:2 benzanthracene, in a total amount of 100 mg. in sesame oil, produced estrus in 30 per cent of the rats that were injected subcutaneously, whereas 1:2:5:6-dibenzanthracene showed no action of this kind.

Witherspoon⁶⁶ points out that the essential difference in the action of these two groups of substances is that estrogenic substances essentially stimulate only the reproductive tract and the accessory sex organs, whereas the carcinogenic substances may stimulate growth in any body tissue.

Loeb¹² compared estrogenic and carcinogenic properties and drew the following conclusions: "(1) there are substances which are both estrogenic and carcinogenic; (2) there are carcinogenic substances which are not estrogenic; (3) there are estrogenic substances which are not carcinogenic; (4) even in cases in which compounds are both estrogenic and carcinogenic, there is no parallelism between the strength of the activities." He stated that "ovarian hormones in interaction with the hereditary factors are responsible for the origin of mammary cancer."

Burrows⁶⁷ and also Cramer and Horning,^{67a} in comparing the local carcinogenic effect of estrogenic substances to other carcinogenic substances, applied estrogen for long periods of time directly to the skin of mice according to the technic commonly used in the production of tar cancer but failed to produce cutaneous cancer.

Lacassagne in 1935 administered weekly injections of folliculin⁶⁸ benzoate to rabbits⁶⁹ and mice.⁷⁰ It was found that this treatment had elicited a fibromyomatous transformation in the uterine wall and an adenomatous proliferation in the cervix and the tubes. In a certain strain of mice which was more strongly predisposed to mammary cancer than other strains, congestion, leukocytic infiltration, epidermoid metaplasia and epithelial proliferation were found to be more marked. He⁷¹ also gave alternate weekly injections of 300 international units of estrone benzoate combined with extracts of the anterior pituitary to two litters of mice from strains refractory to spontaneous carcinoma. In one, a female that died about seven and a half months after treatment had been started, there was found a large mediastinal tumor composed of lymphoid and epidermoid elements and therefore probably of thymic origin. One of the ovaries, which was thickly studded with corpora lutea, contained a metastasis in one kidney. One of the ovaries, which was thickly studded with corpora lutea, contained a tumor the cells of which resembled those of the granulosa closely enough to make one think of a primary ovarian tumor metastasizing to the thymus. A second female that died after about five months' treatment had a squamous cell carcinoma of the uterus. Four litter mates were still living. Two litters from a strain in which an occasional neoplasm is observed were injected in the same way, but no new growths appeared.

Overholser and Allen⁷² injected estrone into monkeys and observed changes in the cervix which were regarded by some pathologists as precancerous or even early carcinoma. The epithelial changes persisted after the cessation of the injections. Zuckerman,⁷³ however, was unable to confirm these observations. Although he found metaplastic processes in one animal, he did not regard the lesions as malignant or precancerous.

62. Fieser, L. F.: *The Chemistry of Natural Products Related to Phenanthrene*, ed. 2, New York, Reinhold Publishing Corporation, 1936.
63. (a) Cook, J. W., and others: *Chemical Compounds as Carcinogenic Agents*, Am. J. Cancer 29: 219 (Feb.) 1937. (b) Dodds, E. C.: *Relationship Between Estrogenic Substances and Their Chemical Relations*, Lancet 1: 931 (May 5) 1934. (c) Cook, J. W.; Dodds, E. C.; Hewett, H. C., and Lawson, W.: *The Estrogenic Activity of Some Condensed Ring Compounds in Relation to Their Other Biologic Activities*, Proc. Roy. Soc. S. B. 114: 272, 1934.
64. Kennaway, E. L.: *Experiments on Cancer-Producing Substances*, Brit. M. J. 2: 1, 1925; 497, 1930.
65. Cook, J. W.: *Aromatic Hydrocarbons: VII. 5:6 Cyclopenteno-1:2 Benzanthracene, a Cancer Producing Hydrocarbon*, J. Chem. Soc. part 2, 1931, p. 2529.
66. Witherspoon, J. T.: *Estrogenic, Carcinogenic and Anterior Pituitary Growth Principles, and Their Clinical Relation to Benign and Malignant Tumors*, Am. J. Obst. & Gynec. 31: 173 (Jan.) 1936.
67. Burrows, Harold: *Brit. J. Surg.* 23: 191 (July) 1935.
68. Lacassagne (Compt. rend. Acad. d. sc. 195: 630 [Oct. 10] 1932) employed a preparation called "folliculine benzoate." It is impossible to judge from the literature whether this is the benzoate of ketohydroxy-estrin (estrone) or whether it is identical with the benzoate of ketohydroxy-estrin (estrone) under the name "Progynon-B." In his subsequent (Compt. rend. Soc. de biol. 115: 937, 1934) work Lacassagne designates the product simply as "folliculine."
69. Lacassagne, A.: *Progressive Changes in the Uterus of Rabbits Submitted from Birth to Repeated Injections of Estrone (Folliculin)*, Compt. rend. Soc. de biol. 120: 685-689, 1935.
70. Lacassagne, A.: *Progressive Changes in the Mouse Uterus Under the Prolonged Administration of Estrone*, Compt. rend. Soc. de biol. 115: 1185, 1935.
71. Lacassagne, A.: *Malignant Tumors in Strains of Mice Refractory to Spontaneous Cancer Following Combined Hormonal Treatment*, Compt. rend. Soc. de biol. 121: 607-609, 1936.
72. Overholser, M.D., and Allen, Edgar: *Ovarian Hormone and Traumatic Stimulation of Monkey's Cervix to Condition Resembling Early Cervical Growth Induced in Cervical Epithelium of Monkey by Prolonged Injections of Ovarian Hormone Combined with Chronic Trauma, Surg., Gynec. & Obst.* 60: 129 (Feb.) 1935.
73. Zuckerman, S.: *Effects of Prolonged Estrin Stimulation on the Cervix Uteri*, Lancet 1: 435-437 (Feb. 20) 1937.

Gardner,⁸¹ studying the influence of estrogenic substances on abnormal growths, came to the following conclusions: (1) The estrogenic substances are specific growth-stimulating chemicals; (2) there is a chemical structural similarity of the estrogenic materials and the definitely carcinogenic phenanthrene derivatives isolated from tar; (3) some of these synthetic carcinogenic chemicals also act on the female genital tissues in much the same way as the estrogenic chemicals. He used six different estrogenic chemicals—estrone, estriol, keto-estrin benzoate, hydroxy-estrin benzoate, equilin and equilin benzoate—and found that large quantities of estrogenic substances may produce abnormal growth of the mammary glands and also mammary tumors. Injections of excessive amounts frequently hindered normal body growth, resulted in retention of urine and were associated with certain other pathologic conditions such as abnormal development of the mammary glands. In using the various types of estrogenic substances, the author found that the carcinogenic effect of the different estrogens is directly proportionate to the degree of physiologic activity; i. e., to their potency in terms of rat units per milligram.

Gardner, Allen and Strong⁷⁴ found no malignant condition of the vagina in mice receiving large amounts of estrogenic substances. Hypertrophy of the connective tissue, however, in the wall of the upper part of the vagina and mucoid transformation in this tissue were frequently seen. In a few animals, leukocytic infiltration had partially removed small areas of epithelial tissue, and deep epithelial pegs reaching down into the surrounding connective tissue were found. The response of the uterus to large amounts of estrogenic substances was to some degree dependent on the particular strain of mice and the age of the animal used. If injections were started immediately after birth, the muscles of the uterus did not develop normally, the connective tissue of the mucous membrane was hyalinized and the epithelium showed squamous metaplasia. Only a few glands had developed. In four animals, infiltrating epithelial overgrowths were found in the lower parts of the uterine horns or in the cervix. The growths had penetrated the muscular wall or had grown beneath the vaginal epithelium. These manifestations of epithelial overgrowth have been confirmed by Lacassagne⁷⁵ and by Loeb, Burns, Suntzeff and Moskop.⁷⁶ Perry⁷⁷ was also able to produce epithelial hyperplasia, using combined applications of carcinogenic agents and estrogenic substances.

Estrogens injected into males inhibit the growth and function of the testes. Moore and Price⁷⁸ attributed this change to the reciprocal interrelationship between the pituitary gland and the gonads. Their experiments showed that the germinal epithelium was definitely damaged when mice received large quantities of estrogenic substances. Burrows⁷⁹ observed, as did Gard-

ner,⁸⁰ an increase in the amount of interstitial tissue in the testis of some mice. Definite changes occurring in the seminal vesicles and in the prostate glands of mice have been described by Burrows and Kennaway⁴⁰ and by Lacassagne.⁸¹ The smooth muscles in the seminal vesicles were hypertrophic, and in the prostate there was extensive squamous metaplasia associated with leukocytic infiltration. Cancerous growths of the male genital organs have not been reported in animals receiving estrogenic substances.

Perry and Ginzton⁸² have reported on the production of neoplasms in a colony of female mice, half of which were treated with 1:2:5:6 dibenzanthracene and the other half with 1:2:5:6 dibenzanthracene and estrone. Numerous benign epithelial proliferations of the skin, breast, uterus, alimentary tract and lungs occurred before the development of carcinoma and appeared to be causally related to the subsequent malignant growths. They believed that the incidence of carcinoma of the skin is chronologically related to the development of carcinomas of the breast and that the carcinomas of the breast are causally and chronologically related to carcinoma of the uterus. A solution of dibenzanthracene (0.3 per cent) was applied to the skin at the nape of the neck twice a week with a camel's hair brush. One hundred and fifty adolescent females were used for these experiments. Six weeks later, estrone was applied in an estimated dose of 125 rat units. In the opinion of these investigators, the incidence of carcinoma of the skin in females as produced by dibenzanthracene was not intrinsically affected either by spaying or by the use of estrone.

Murray⁸³ reported a series of parabiotic experiments in which normal male and female mice of the dilute brown strain were united. The estrous cycles showed pronounced changes attributed to introduction of the male hormone into the blood stream. The ovaries were stimulated to a precocious and prolonged production of follicles which degenerated within the glands, with the result that no luteal tissue was formed. Though normally cancer of the breast develops in from 65 to 100 per cent of the breeding females and 50 per cent of the virgin females of this strain, no mammary cancers were observed in the parabiotic females. It seemed reasonable to assume, therefore, that proliferation and malignant changes in the mammary glands might be due in some measure to the luteal fraction of the ovarian hormone. On this hypothesis the observed difference in cancer incidence between the breeding and virgin females may be explained as being due to the prolonged luteal phase of pregnancy.

Taylor,⁸⁴ in reviewing the evidence for an endocrine factor in the etiology of mammary tumors, concluded that breast tumors were dependent on the ovarian hormone, since this hormone is essential for the development and preservation of the epithelium of the mammary gland, and without it there is no tissue on which any

74. Gardner, W. U.; Allen Edgar, and Strong, L. C.: Atypical Uterine and Vaginal Changes in Mice Receiving Large Amounts of Estrogenic Hormone, *Anat. Rec.* 64:17 (suppl. 3, March) 1936.

75. Lacassagne, A.: Certain Biological Problems Relating to Cancer, Hormones and Radiation, privately published, 1936.

76. Loeb, Leo; Burns, E. L.; Suntzeff, V., and Moskop, Marian: Carcinoma-like Proliferations in Vagina, Cervix and Uterus of Mouse Treated with Estrogenic Hormones, *Proc. Soc. Exper. Biol. & Med.* 35:320 (Nov.) 1936.

77. Perry, Isabella H.: Production of Carcinoma of the Uterus in Mice, *Proc. Soc. Exper. Biol. & Med.* 35:325 (Nov.) 1936.

78. Moore, C. R., and Price, Dorothy: Gonad Hormone Functions and Reciprocal Influence Between Gonads and Hypophysis with Its Bearing on the Problem of Sex Hormone Antagonism, *Am. J. Anat.* 50:13 (March) 1932.

79. Burrows, Harold: Changes Induced in the Interstitial Tissue of the Testis of the Mouse by Certain Estrogens, *J. Path. & Bact.* 42:161 (Jan.) 1936.

80. Gardner, W. U.: Hypertrophy of Interstitial Cells in Testes of Mice Receiving Estrogenic Hormones, *Anat. Rec.* 68:339 (June 25) 1937.

81. Lacassagne, A.: Epidermoid Metaplasia of the Prostate, Induced by Repeated High Doses of Folliculin, *Compt. rend. Soc. de biol.* 113:590, 1933; Comparative Study of the Carcinogenic Action of Certain Estrogenic Hormones, *Am. J. Cancer* 28:735 (Dec.) 1936.

82. Perry, Isabella H., and Ginzton, L. L.: The Development of Tumors in Female Mice Treated with 1:2:5:6 Dibenzanthracene and Theelin, *Am. J. Cancer* 29:680 (April) 1937.

83. Murray, W. S.: Sex Hormones and Cancer; Some Effects of the Interplay of Sex Hormones upon the Incidence of Mammary Cancer in Mice, *Am. J. Cancer* 30:517 (July) 1937.

84. Taylor, H. C., Jr.: The Evidence for an Endocrine Factor in the Etiology of Mammary Tumors, *Am. J. Cancer* 27:525 (July) 1936.

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carcinogenic agent may act. This explains the absence of cancer of the breast in early castrates and untreated male mice. Ovarian function is apparently essential for the common types of chronic mastitis and fibroadenoma, the development of which is practically limited to the years of mature sexual life. This is not true of carcinoma, which may appear long after the menopause. With the neoplastic disease once established, a marked response to variations in glandular function, such as those incident to pregnancy and the menopause, is noted in chronic mastitis and fibroadenoma. A moderate reaction to these changes is observable in some cases of carcinoma. He asserted that some evidence of glandular dysfunction can be found in certain cases of chronic mastitis, but hormone substances are unknown to those necessary to produce carcinoma in mice by the injection of estrogenic substances as yet no clinical evidence of any specific endocrine dysfunction as the cause of cancer of the human breast.

Gardner and his co-workers⁸⁵ recently observed the development of a large carcinoma of the cervix uteri with metastases to the lumbar lymph nodes in a mouse injected with 10,500 international units of estradiol benzoate over a period of 319 days. This tumor was grafted successfully into male and female mice of the same strain and grew rapidly without further stimulation by estrogenic substances. Smaller invading epithelial growths found in eighteen other mice were considered as precancerous changes or early carcinomas. Gardner, Smith, Strong and Allen⁸⁶ observed the rapid development of sarcomatous growth in five male mice which had received daily injections of estrone followed by weekly injections of keto-estrin benzoate. These sarcomas appeared at the sites of injection in the subcutaneous tissue of the back. Most of these tumors were grafted on other mice of the same strain and continued their rapid growth. Burns, Suntzeff and Loeb⁸⁷ also reported a similar development of sarcomas in mice at the sites of injection of estrone. There is no doubt that the estrogens have carcinogenic properties when absorbed by animals. However, in Kurzrok's⁸⁸ opinion there is no such danger to human beings. He states that he has given to individual patients as much as three million units of estrone by injection and has never noted the slightest neoplastic change in the genital organs, breast or skin as a result. Other investigators, however, are of the opinion that cancerous growths may arise in certain persons after the long-continued use of androgens and estrogens.

Cramer and Horning^{87a} emphasize that:

Since estrin preparations are now being used extensively in gynecological practice it may be well to point out that the carcinogenic changes here described were produced by the administration of estrin prolonged over a period representing a considerable fraction of the normal span of the life of a mouse and corresponding in man to a period of from seven to ten years, while the therapeutic administration of estrin preparations in man is, in skilled hands, limited to short periods of a few weeks or months.

85. Gardner, W. U.; Allen, Edgar; Smith, G. M., and Strong, L. C.: Carcinoma of the Cervix of Mice Receiving Estrogens, *J. A. M. A.* **110**: 1182, 1938.
86. Gardner, W. U.; Smith, G. M.; Strong, L. C., and Allen, Edgar: Development of Sarcoma in Male Mice Receiving Estrogenic Hormones, *Arch. Path.* **21**: 504 (April) 1936.
87. Burns, E. L.; Suntzeff, V., and Loeb, Leo: The Development of Sarcoma in Mice Injected with Hormones or Hormone-like Substances, *Am. J. Cancer* **32**: 534 (April) 1938.
88. Kurzrok, Raphael R.: *The Endocrines in Obstetrics and Gynecology*, Baltimore, Williams & Wilkins Company, 1937.

Auchincloss and Haagensen⁸⁹ observed striking enlargement of the breasts of a number of women during the course of administration of progynon B (estradiol benzoate), and they reported one case in which cancer of the breast developed in a patient under prolonged treatment with this estrogen. While they were not able to conclude that the estradiol benzoate which the patient received was with certainty a contributing cause of her cancer, they felt that it was entirely possible, "indeed even probable." They concluded that:

Until more is known about the effects of these substances we believe that their use should be avoided: (1) in large or prolonged doses, (2) when there is a family history of breast cancer, (3) without initial and repeated clinical examination of both breasts, and (4) in patients with chronic mastitis, carcinoma or any form of breast neoplasm, either before or after surgical or radiation treatment.

Parkes, Bishop and Dodds⁹⁰ also believe that scientific evidence is against any risk of cancer production by estrogens in therapeutic dosage and express the opinion that it would be "a great disservice to practical therapeutics if the use of sex hormones were to be in any way restricted on account of unsubstantiated speculation."

The correlation between the appearance of tumors and the administration of estrogenic substances is not quite clear. Sannicandro⁹¹ attributes a certain importance to the estrogens in the pathologic changes of carcinoma. He feels, however, that the follicular hormone alone is not capable of producing a malignant neoplasm but that its influence becomes apparent when another local cause for the origin of cancer is established. This does not, however, explain the results obtained by Lacassagne,⁹² using mice of low cancer strains, who observed that between the twelfth and the sixteenth month all those animals, both males and females, which were supposedly hereditarily resistant to cancer showed adenocarcinomas of the mammary glands, with the exception of one male which died at nine months with an abscess of the prostate. In this animal, the mammary glands showed marked hyperplasia. The explanation of these facts by assuming a dominant or recessive factor X for the production of cancer is obviously unsatisfactory. Sannicandro⁹¹ concludes that strict control of the use of estrogens in therapy is strongly advisable.

Frank⁹³ and said:

Absorption of estrogens through the vaginal mucosa and through the skin likewise occurs. This method should not be used over long periods of time because carcinogenic potentialities are increased by topical application.

Frank^{93a} again in THE JOURNAL stated:

The question has been raised whether estrogenic medication may favor carcinogenesis. No direct confirmatory evidence has been adduced in the human being. With so much cholesterol and intermediate cholesterol derivatives normally circulating in the blood, no such by-effects need be anticipated from enteral or parenteral absorption, with the reservation that localized der-

89. Auchincloss, Hugh, and Haagensen, C. D.: Cancer of the Breast Possibly Induced by Estrogenic Substance, *J. A. M. A.* **114**: 1517 (April 20) 1940.
90. Parkes, A. S.; Bishop, P. M. F., and Dodds, E. C.: Estrin and Cancer, *Lancet* **2**: 1365 (Dec. 5) 1936.
91. Sannicandro, G.: Estrogenic Hormones and Carcinogenesis, *Ann. di ostet. e ginec.* **58**: 1341 (Oct. 31) 1936.
92. Lacassagne, A.: Hormonal Pathogenesis of Adenocarcinoma of the Breast, *Am. J. Cancer* **27**: 217 (June) 1936.
93. The Dosage of the Estrogens, editorial, *Am. J. Obst. & Gynec.* **36**: 525 (Sept.) 1938.
93a. Frank, R. T.: The Sex Hormones, *J. A. M. A.* **114**: 1504 (April 20) 1940.

mal applications should be avoided, as the skin is particularly responsive to continued application of or exposure to carcinogenic agents in both animals and human beings.

Loeb³ states:

Injection of estrogenic hormones into mice may lead to the production of cancer in those organs in which these hormones induce, normally, growth processes, namely in the mammary glands, vagina and cervix. In addition, long continued injections of estrogenic hormones may induce (although in rather rare instances) sarcoma formation mainly, but not exclusively, at or near the point of injection.

Ewing⁹⁴ stated that it is unjustifiable to use topical applications of estrogenic substances in cosmetics, citing reports of the development of sarcomas at the site of injection of these substances. He also mentioned that such applications may cause an increase in the melanotropic hormones from the pituitary, following which there may be an increased tendency to melanoma. He believes "that the application of estrogenic hormones on or near the site of a melanotic mole may stimulate it to growth."

The Council on Pharmacy and Chemistry of the American Medical Association,⁹⁵ as early as 1933, warned against the indiscriminate use of estrogenic substances and stated:

The possibility that a preparation as active as theelin is in animals might do considerable harm in its unconsidered clinical use has apparently not received the attention it deserves. Reports have recently appeared in the literature indicating that in experimental animals possibly serious damage may result from the prolonged administration of estrogenic substance.

In an editorial⁹⁶ which appeared in THE JOURNAL it was emphasized that the uncontrolled use of estrogens might result in dangerous consequences:

Estrogen, as has already been well established, has definite uses in medicine when properly employed under controlled conditions. Now evidence becomes available that this endocrine principle, like all other potent endocrine substances, is a two-edged sword capable of remarkable achievements when properly used and dangerous when carelessly employed.

THE JOURNAL again in a recent editorial^{96a} warned against the indiscriminate and prolonged use of estrogenic substances, particularly in the treatment of patients in whom there are already factors present which predispose to cancer. Reference was made to Gemmell and Jeffcoate,^{96b} who reported their observations of the development of cancer of the cervix in three patients among forty-three who were treated with estrogens for kraurosis vulvae and senile vaginitis. The report of Auchincloss and Haagensen⁹⁹ on cancer of the breast possibly induced by estrogenic substance was also pointed out.

SUMMARY ON HORMONES

1. Androgens and estrogens are readily absorbed through the intact skin when applied in a solution or ointment.

2. By cutaneous application, hormones can cause systemic effects similar to those observed after ingestion or injection of these substances; in some instances, the effects are greater by percutaneous absorption.

94. Ewing, Janies: Personal communication to the authors, June 1938.
95. Estrogenic Substances: Theelin, Report of Council on Pharmacy and Chemistry, J. A. M. A. 100:1331 (April 29) 1933.

96. Endocrine—A Cosmetic with a Menace, editorial, J. A. M. A. 110:1195 (April 9) 1938.

96a. Contraindications to Estrogen Therapy, editorial, J. A. M. A. 114:1560 (April 20) 1940.

96b. Gemmell, A. A., and Jeffcoate, T. N. A.: Estrogens and Carcinoma of the Uterus, J. Obst. & Gynec. Brit. Emp. 46:985 (Dec.) 1939.

3. Among the effects observed from the application of these substances to the skin of animals are reduction of the weight of the seminal vesicles and testes; enlargement and anaplasia of the prostate gland; increase of the height of the mammary nipples; disturbances in the menstrual cycle; changes in the mammary glands, reproductive and genital organs, and damage to the ovaries.

4. Absorption of estrogens may have various effects on the gingivae and oral mucous membranes.

5. The nipple test and the experiments showing enlargement of the comb of the capon from local applications of small quantities of estrogen indicate the possibility of other local effects.

6. Estrogen acts directly on the pituitary, causing a decrease in the production of the gonadotropic principle and hypertrophy. The ovaries are not directly damaged by administration of estrogen but become atrophic because of inadequate stimulation by the pituitary. Tumors of the pituitary may occur. The action on the pituitary by elimination of the growth hormone has also been found to impair the growth of the skeleton and certain organs.

7. There is a chemical structural similarity between the estrogenic substances, the sterols, the bile acids, vitamin D and some carcinogenic hydrocarbons.

8. Certain carcinogenic hydrocarbons can produce estrus in rats.

9. Estrogenic substances absorbed by various routes have produced in animals malignant and premalignant conditions of the genital tissues and accessory sex organs.

10. Because of recent reports of the development of cancer coincidental with prolonged estrogenic therapy, its indiscriminate use should be cautioned against particularly when there are factors already present which predispose to cancer.

11. Sarcomas have occurred in animals at the site of injection of estrogenic substances.

12. It has been reported that certain dermatoses may be benefited by inunction with estrogens; also that certain symptoms associated with the menopause, such as arthritis ovaripriva, have been relieved. Further investigation is necessary to corroborate this.

13. The treatment of kraurosis vulvae and senile vaginitis by topical applications of estrogens has not yet proved to be efficacious.

14. Menstruation can be produced in ovariectomized women by cutaneous application of hormones.

15. It has been reported that follicular substance causes a significant reduction of the sexual activity in man as recognized by the decrease of libido and subsidence of pollutions in a person kept at enforced abstinence. Experimental animals show signs of reduced spermatogenesis, which however returns to normal even after excessive doses, when the medication is discontinued.

16. It has been observed that men employed in packing ampules of estrogenic material have developed tender swelling of the breasts from continual handling of the estrogenic compounds.

17. Testosterone propionate has been reported to be a satisfactory replacement therapy for hypogonadism in the human being. Its use has produced profound anatomic changes resulting in the proportionate growth of the male genitals with increased functional activity.

18. It has been shown that the anterior pituitary-like principle from the urine of pregnant women exerts a

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profound influence on the growth and function of the male genitalia. It may produce an increase in the size of the penis, scrotum and prostate in both man and animals before the age of puberty.

19. A commercial face cream containing estradiol produced cancer in animals, as well as other profound systemic changes, when applied on the skin in one-fifth the amount recommended for daily use by women.

(To be continued)

DIPHTHERIA MORTALITY IN LARGE CITIES OF THE UNITED STATES IN 1939

SEVENTEENTH ANNUAL REPORT

The data for this review have been obtained from the local health departments through the means outlined in the report on typhoid deaths.¹ The health officer has provided the number of diphtheria deaths both among residents and among nonresidents which occurred in his city in 1939. As the time of the 1940 census approaches, local estimates of population become less trustworthy. They provide, however, the only available data. It is anticipated that the rates will be

TABLE 1.—Death Rates of Fourteen Cities in New England States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1935	1930	1925	1920	1915	1910	1905	1900	1895
	to	to	to	to	to	to	to	to	to
	1939	1938	1937	1936	1935	1934	1933	1932	1931
Springfield....	0.0	0.0	0.0	0.3	2.1	10.3	15.4	24.9	31.3
Lynn.....	0.0	0.0	0.0	0.4	4.7	13.5	17.0	21.7	29.6
Lowell.....	0.0	0.0	0.0	2.4	9.4	10.6	16.7	23.5	29.6
New Bedford..	0.0	0.0	0.9	0.4	4.8	10.9	16.5	20.9	22.6
New Haven....	0.0	0.0	1.3*	0.4	0.5	1.6	7.1	14.2	14.9
Waterbury....	0.0	0.9	4.8	1.3	2.4	2.6	17.9	23.0	29.6
Somerville....	0.0	1.0	0.0	0.4	9.0	9.5	15.8	20.3	21.4
Providence....	0.0	0.9	1.2*	0.6	5.0	5.3	11.9	13.8	25.3
Boston.....	0.4†	0.2*	0.5	0.7	3.2	3.3	8.9	12.9	23.8
Hartford.....	0.5†	1.1*	0.0	1.4	1.1	3.2	8.9	12.9	23.8
Cambridge....	0.6	0.8	0.0	0.3	1.2	3.2	8.6	15.5	14.1
Worcester....	1.0	1.6†	0.0	0.7	2.9	8.6	15.5	23.4	23.3
Bridgeport....	1.3	2.0†	0.0	0.8	1.0	11.8	19.6	23.4	23.3
Fall River....	2.6†	3.5	4.3	2.7	3.9	12.0	23.5	23.6	50.1

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.

readjusted in keeping with the population data to be released following the completion of the federal census. Special attention is directed to the use of symbols to indicate those cities in which either (1) all diphtheria deaths were stated to be in nonresidents or (2) one third or more of such deaths were stated to be in nonresidents. While table 11 lists the cities with no deaths in 1939, table 13 gives the cities which would be included in such an honor list unless burdened by deaths among nonresidents.

The fourteen New England cities (table 1) report a continued downward trend in the death rate for the group as a whole but still have not been able to overhaul the cities of the Middle Atlantic states, which continue to hold first place (table 16). Seven of the cities in this group (Springfield, Lynn, Lowell, New

Bedford, New Haven, Waterbury, Somerville) report no death from diphtheria in 1939. Providence, after three years with no death among residents, reports one such death in 1939, thus losing its place on the honor roll. Hartford reports no death occurring in a resident and but one among nonresidents, thus completing three years with no death among residents in Hartford. There has been no typhoid death among residents in Hartford for two years. Three cities (Springfield, Lynn, Lowell) record no deaths during the past three years (table 10) and no typhoid deaths in 1939 (table 12). Lynn reports also no typhoid deaths in 1937 and 1938, and Lowell

TABLE 2.—Death Rates of Eighteen Cities in Middle Atlantic States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1935	1930	1925	1920	1915	1910	1905	1900	1895
	to	to	to	to	to	to	to	to	to
	1939	1938	1937	1936	1935	1934	1933	1932	1931
Rochester....	0.0	0.0	0.0	0.0	0.7	7.5	16.9	12.7	22.1
Utica.....	0.0	0.0	0.0	0.0	1.2	13.4#	....	....	....
Elizabethtown..	0.0	0.0	0.0	0.0	3.5	5.8	16.8	15.1	17.7
Albany.....	0.0	0.0	0.0	0.3	4.5	13.2	19.2	19.3	14.8
Yonkers.....	0.0	0.0	0.7*	0.1	2.9	7.5	12.8	10.4	20.0
Patterson.....	0.0	0.0	0.7	0.3	0.6	10.4	17.0	17.7	23.3
Saratoga.....	0.0	0.0	1.4†	0.7	6.3	9.1	18.5	13.5	16.1
Trenton.....	0.0	1.6†	2.6†	0.7	1.3	11.7	12.3	22.1	23.4
Philadelphia....	0.1	0.5†	0.3	0.5	1.3	11.8	16.7	23.7	24.6
Newark.....	0.2	0.2	0.2	0.2	3.0	4.4	7.3	8.8	12.8
Buffalo.....	0.3	0.3	0.5†	0.8	4.8	9.1	24.0	21.3	23.0
New York.....	0.3	0.3	0.5	0.6	2.2	10.7	14.0	12.9	16.6
Syracuse.....	0.4	0.0	0.5*	0.2	0.4	2.0	22.9	20.1	22.3
Pittsburgh....	0.4	0.9†	1.1	1.2	5.0	11.5	18.4	21.0	23.2
Jersey City....	0.9	1.8	2.1	2.0	6.0	11.5	20.3	23.2	32.6
Camden.....	2.5†	2.5†	2.5†	2.7	7.7	21.9	20.3	23.2	48.9
Reading.....	7.0	5.3†	0.0	2.6	3.5	7.3	21.1	16.9	35.7

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
Diphtheria deaths from Chapin's Municipal Sanitation.
* Incomplete data.
† Diphtheria data furnished by Pennsylvania Department of Health, Harrisburg.

TABLE 3.—Death Rates of Nine Cities in South Atlantic States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1935	1930	1925	1920	1915	1910	1905	1900	1895
	to	to	to	to	to	to	to	to	to
	1939	1938	1937	1936	1935	1934	1933	1932	1931
Miami.....	0.7*	2.1†	3.1†	2.6	3.8	5.4#	....	....	....
Washington....	0.8†	1.1	2.2	2.8	3.9	7.1	10.5	11.9	6.9
Baltimore....	1.0†	0.7†	1.3	1.0	1.7	7.6	11.4	13.5	14.2
Jacksonville..	1.3†	2.6	2.0†	2.6	5.4	6.0#	....	....	....
Wilmington....	1.8	1.8	0.9	1.6	5.3	10.9	11.6	15.2	18.0
Richmond.....	2.7†	1.1*	1.1†	1.7	3.6	6.9	9.8	7.0	0.8
Tampa.....	3.0†	3.0†	2.0†	3.1	4.8	4.6	5.2	9.5#	....
Norfolk.....	3.1*	2.3	2.3†	2.6	4.6	4.1	4.3	4.1	6.7
Atlanta.....	3.2†	4.0†	4.1†	4.4	5.7	7.0	13.3	10.1	12.5

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
Incomplete data.

none in 1938. There has been no death from either diphtheria or typhoid among residents in Springfield during the past five years. New Bedford reports two years without a diphtheria death and three without a death from typhoid. New Haven records no diphtheria death among residents for five years. Somerville records but one typhoid death among residents in six years and but one from diphtheria in four years. Boston reports three diphtheria deaths, two among nonresidents. The total number of deaths in the area decreased from seventeen in 1938 to thirteen in 1939 (table 16). The death rate fell from 0.64 to 0.49. One city (Fall River) had a rate in excess of 2.0. The eighteen cities in the Middle Atlantic states (table 2) continue to hold first place. The group rate

The preceding articles were published in THE JOURNAL Sept. 20, 1924, p. 918; April 25, 1925, p. 1269; April 3, 1926, p. 1005; April 30, 1927, p. 1396; May 19, 1928, p. 1621; May 25, 1929, p. 1759; June 7, 1930, p. 1838; May 23, 1931, p. 1768; May 7, 1932, p. 1644; May 20, 1933, p. 1595; May 26, 1934, p. 1758; June 15, 1935, p. 2182; June 13, 1936, p. 2060; June 26, 1937, p. 2200; Aug. 6, 1938, p. 524, and May 20, 1939, p. 2043.
1. Typhoid in the Large Cities of the United States in 1939, J. A. M. A., to be published.

of 0.34 is significantly lower than that of 1938 (0.48) and the average for the quinquennial period 1930-1934 (2.50). The new rate represents a new all-time low. In 1938 there were sixty-four deaths, in 1939 but forty-six. Nine cities (Rochester, Utica, Erie, Elizabeth, Albany, Yonkers, Paterson, Scranton, Trenton) appear in the select list (table 11) with no diphtheria death in 1939. Syracuse, after four years with no death from either diphtheria or typhoid among residents, reports one such diphtheria death in 1939, thus losing its place on the honor roll. Utica holds the outstanding record

TABLE 4.—Death Rates of Eighteen Cities in East North Central States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1935	1930	1925	1920	1915	1910	1905	1900	1895
	to	to	to	to	to	to	to	to	to
	1939	1938	1937	1936	1935	1934	1933	1932	1931
Grand Rapids	0.0	0.0	0.6	0.2	0.3	2.0	19.6	13.5	20.0
Fort Wayne	0.0	0.0	0.8	2.0	3.3	5.1	13.1	6.3	...
South Bend	0.0	0.0	0.9	0.9	1.3	...	...	...	...
Youngstown	0.0	0.0	1.7	0.7	3.3	10.5	18.5	11.9	40.5
Peoria	0.0	0.0	1.7	3.4	5.3	4.9	7.4	10.8	10.6
Akron	0.0	0.0	2.8	1.7	2.7	4.9	10.4	18.9	27.8
Milwaukee	0.0	0.3	0.6	0.4	2.0	8.5	11.4	19.8	27.8
Toledo	0.0	0.6*	2.5	1.0	2.8	7.2	22.4	14.1	25.4
Canton	0.0	0.9	0.9	0.7	1.7	2.9	17.5	15.1#	...
Cleveland	0.1	0.5	0.6	0.9	2.5	15.3	14.7	20.0	24.6
Detroit	0.4	1.0	2.0	1.0	4.8	19.7	24.3	32.2	33.3
Columbus	0.6	1.8	1.0	1.8	3.2	4.6	8.5	7.6	12.1
Evansville	0.9	0.9	6.3†	2.2	3.2	3.7	13.9	14.9	16.1
Chicago	1.6	1.9	2.3	2.1	4.3	11.7	17.5	31.2	37.9
Cincinnati	1.8†	3.2†	1.1†	2.4	3.2	5.2	10.6	13.2	13.9
Flint	1.9	1.9†	1.8	2.6	2.7	4.5	29.9	25.5	12.7
Indianapolis	1.9	4.8†	2.7	3.6	3.1	6.6	11.7	21.4	13.5
Dayton	3.0	5.7	1.4†	4.0	3.5	4.6	9.4	0.3	22.1

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‡ Diphtheria deaths from Chapin's Municipal Sanitation.
Incomplete data.

with no diphtheria death during the past six years and no typhoid death for four years. Rochester and Erie report no diphtheria death for five years, Elizabeth none in four years. Albany records no death among residents in five years. New York reports twenty-two

TABLE 5.—Death Rates of Six Cities in East South Central States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1935	1930	1925	1920	1915	1910	1905	1900	1895
	to	to	to	to	to	to	to	to	to
	1939	1938	1937	1936	1935	1934	1933	1932	1931
Memphis	0.3*	1.7†	3.8†	2.1	6.0	5.8	9.5	11.2	11.9
Birmingham	1.3*	2.7†	4.2†	2.9	4.2	5.4	5.3	7.2	8.3
Louisville	1.7†	2.5	0.3*	2.1	6.3	4.6	10.4	9.5	0.0
Knoxville	2.3†	8.0†	6.4†	7.5	9.6	6.3	11.2	...	...
Nashville	3.0†	4.3†	3.7†	4.1	8.2	11.8	8.0	8.9	7.3
Chattanooga	6.6	3.3	3.3	4.1	6.8	5.9	8.7	...	...

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‡ Diphtheria deaths from Chapin's Municipal Sanitation.

deaths (twenty-six in 1938), all among residents. In 1938 there were two deaths among nonresidents. Philadelphia and Pittsburgh each record three deaths, all among residents; Buffalo, two among residents. Two cities (Camden, Reading) have rates in excess of 2.0. Camden reports three deaths, two among residents; Reading, eight among residents. The health officer of Reading states that these deaths occurred in the early part of the year during an epidemic of ninety-six cases which started in 1938. The outbreak was brought under control in the spring of 1939 by the use of vigorous methods employed to increase the percentage of preschool and school children to whom protective treat-

The nine cities in the South Atlantic states (table 3) report forty-one deaths in 1939, two less than in 1938. The death rate, however, has fallen from a quinquennial average of 3.54 for 1930-1934 to 1.56 in 1939. While there is no city in the area without a death, two (Miami, one death; Norfolk, four deaths) report all among non-

TABLE 6.—Death Rates of Nine Cities in West North Central States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1935	1930	1925	1920	1915	1910	1905	1900	1895
	to	to	to	to	to	to	to	to	to
	1939	1938	1937	1936	1935	1934	1933	1932	1931
Duluth	0.0	0.0	0.0	0.2	0.4	2.0	6.0	10.2	8.8
Des Moines	0.0	0.0	0.0	1.7	4.3	5.2	15.1	16.6	15.1
St. Paul	0.0	0.3	0.7	0.3	1.1	5.2	17.5	20.7	31.4
Wichita	0.0	1.9†	0.0	1.1	4.6	4.2	...	...	...
Kansas City	...	...	...	...	...	...	...	...	...
Kan.	0.0	2.3	2.3	1.6	3.7	4.6	9.8	23.1	12.4#
Minneapolis	0.2	0.4	0.2*	0.6	1.7	11.9	13.4	19.0	28.3
Kansas City, Mo.	0.2	1.4	0.5*	0.9	3.2	4.7	14.4	22.8	15.7#
Omaha	0.9	0.4	0.0	1.4	4.7	6.4	22.9	55.8	15.8
St. Louis	1.0†	1.9†	3.2†	2.3	4.3	19.3	16.1	24.4	23.7

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
Incomplete data.

TABLE 7.—Death Rates of Eight Cities in West South Central States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1935	1930	1925	1920	1915	1910	1905	1900	1895
	to	to	to	to	to	to	to	to	to
	1939	1938	1937	1936	1935	1934	1933	1932	1931
Oklahoma City	0.4	1.3	1.8	2.0	5.7	10.9	...	...	...
Fort Worth	0.5*	3.3	4.4	3.8	7.2	10.8	1.7#	2.6#	2.6
Tulsa	0.6	2.5	1.4	2.0	6.8	12.5	8.3#	...	...
Houston	0.8	2.5	1.7	2.8	5.6	8.2	6.4	6.1	7.5
San Antonio	1.1	1.9†	2.7	4.0	5.6	10.3	7.7	8.7	6.7
El Paso	2.8†	4.9	6.5	4.4	8.0	7.3	20.0	17.6	29.2
Dallas	2.9†	2.0†	4.3	4.6	9.7	9.8	8.3	7.4	6.9
New Orleans	3.6	3.6†	3.9	4.1	5.5	8.5	6.5	11.6	19.6

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
Incomplete data.

TABLE 8.—Death Rates of Eleven Cities in Mountain and Pacific States from Diphtheria (Including Croup) per Hundred Thousand of Population

	1935	1930	1925	1920	1915	1910	1905	1900	1895
	to	to	to	to	to	to	to	to	to
	1939	1938	1937	1936	1935	1934	1933	1932	1931
Long Beach	0.0	0.0	0.0	0.6	0.8	2.6	10.4#	...	...
Portland	0.0	0.9	0.0†	0.4	1.3	6.4	11.3	6.0	12.3
Seattle	0.3	0.3	0.8	0.4	0.4	1.4	6.6	5.5	5.2
Oakland	0.6	1.9†	2.6	2.4	2.0	7.4	18.8	8.1	10.3
Salt Lake City	0.7	0.7*	2.0*	1.0	0.3	10.1	12.5	14.5	15.1
Spokane	0.8	0.8	0.0	0.7	0.7	7.5	11.3	4.2	7.6
Tacoma	0.9*	0.0	0.9*	0.4	3.9	9.3	12.4	7.7#	...
San Francisco	1.0	1.3	1.2	0.9	1.2	4.6	23.0	17.0	0.2
San Diego	1.0†	3.7†	3.2	2.4	2.9	6.6	12.2	10.5	8.0
Los Angeles	1.4†	2.2†	2.3†	2.4	4.8	7.0	14.4	7.1	7.5
Denver	3.2	4.5	2.0	3.4	3.9	8.9	23.2	6.7	10.2

* All diphtheria deaths were stated to be in nonresidents.
† One third or more of the reported diphtheria deaths were stated to be in nonresidents.
‡ Diphtheria deaths from Chapin's Municipal Sanitation.
Incomplete data.

residents. Of the remaining seven cities in the group, all but one (Wilmington) report that one third or more of the deaths occurred among nonresidents. Four cities (Richmond, Tampa, Norfolk, Atlanta) have rates in excess of 2.0. Atlanta, with ten deaths, records six among nonresidents; Baltimore, with nine deaths, also six among nonresidents. The health officer of Baltimore records sixty-seven cases in 1939 in contrast with 103 cases in 1934 (the previous low point). Richmond

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reports five deaths, three among nonresidents; Tampa records three, two among nonresidents. Of five deaths reported from Washington, it is stated that two occurred in nonresidents.

The eighteen cities in the East North Central states (table 4) report a rather striking decrease in the number of deaths from 153 in 1938 to ninety-three in 1939. The rate has decreased from 1.54 to 0.94 (table 16). While in 1937 there was no city on the honor roll, in 1938 there were six (Grand Rapids, Fort Wayne, South Bend, Youngstown, Peoria, Akron, Milwaukee, Toledo, Canton). Grand Rapids records but one death among residents each from typhoid and diphtheria during the past four years. Fort Wayne reports no typhoid death for five years, none from diphtheria for two years.

TABLE 9.—Two Cities with Highest Diphtheria Rate for 1939

Chattanooga.....	6.6
Reading.....	7.0

TABLE 10.—Twenty-One Cities with No Diphtheria Deaths in 1938 and 1939

Akron	Grand Rapids	Peoria
Albany	Long Beach †	Rochester ‡
Des Moines †	Lowell †	South Bend
Duluth †	Lynn †	Springfield †
Elizabeth †	New Bedford	Utica *
Eric †	New Haven	Yonkers
Fort Wayne	Paterson	Youngstown

* No diphtheria deaths in six years.
† No diphtheria deaths in five years.
‡ No diphtheria deaths in four years.
§ No diphtheria deaths in three years.

TABLE 11.—Thirty-Two Cities with No Diphtheria Deaths in 1939

Akron	Lowell	South Bend
Albany	Lynn	Springfield
Canton	Milwaukee	St. Paul
Des Moines	New Bedford	Toledo
Duluth	New Haven	Trenton
Elizabeth	Paterson	Utica
Eric	Peoria	Waterbury
Fort Wayne	Portland	Wichita
Grand Rapids	Rochester	Yonkers
Kansas City, Kan.	Scranton	Youngstown
Long Beach	Somerville	

South Bend has seen four years pass without a typhoid death, two without a diphtheria death. Three other cities (Youngstown, Peoria, Akron) report no diphtheria death in 1938 and 1939. Chicago records fifty-six deaths, all among residents. Cleveland reports but one death; Detroit, seven; Flint, three, all among residents. Of seven deaths in Indianapolis, two occurred among nonresidents. One city (Dayton) reports a rate in excess of 2.0. The health officer here records seven deaths, five among residents. The cities in the East South Central states (table 5) report a rate of 1.98, compared with 3.25 in 1938 and a quinquennial average for 1930-1934 of 6.36. In 1938 there were forty-four deaths, in 1939 but twenty-seven. While there is no city in the area without a death, two (Memphis, Birmingham) report all among nonresidents. Of the remaining four cities in the group, all but one (Chattanooga) report that one third or more of the deaths occurred among nonresidents. Three cities (Knoxville, Nashville, Chattanooga) report rates in

excess of 2.0. Knoxville reports three deaths, two among nonresidents; Nashville five deaths, three among nonresidents. Chattanooga records eight deaths, two among nonresidents.

The nine cities in the West North Central states (table 6) stand in third place, following the Middle Atlantic and New England groups. They report a very

TABLE 12.—Twenty Cities with No Diphtheria and Typhoid Deaths in 1939

Akron	Lynn †	St. Paul
Albany	Milwaukee	Trenton
Duluth	New Bedford *	Utica †
Elizabeth *	Paterson	Waterbury
Fort Wayne *	Somerville	Wichita
Kansas City, Kan.	South Bend *	Yonkers
Lowell *	Springfield	

* No diphtheria or typhoid deaths in two years.
† No diphtheria or typhoid deaths in four years.
‡ No diphtheria or typhoid deaths in three years.

TABLE 13.—Seven Cities in Which All Diphtheria Deaths in 1939 Were Stated to Be in Nonresidents

Birmingham	Memphis	Norfolk *
Fort Worth *	Miami	Tacoma
Hartford †		

* All typhoid deaths in 1939 were stated to be in nonresidents.
† No typhoid deaths in 1939.

significant decrease in rate (1.11 in 1938, 0.64 in 1939). The diphtheria deaths decreased from thirty-one in 1938 to eighteen in 1939. It is the only group with no city with a rate in excess of 2.0. Five of the nine cities are on the honor roll (Duluth, Des Moines, St. Paul, Wichita, Kansas City, Kan.). St. Louis records the highest rate but reports that 50 per cent (seven out of fourteen) deaths were among nonresidents. In the area as a whole only eleven deaths occurred among residents of the cities (seven in St. Louis, two in Omaha, one each in Kansas City, Mo., and Minne-

TABLE 14.—Number of Cities with Various Diphtheria Death Rates

	No. of Cities	40 and Over	20 and Over	10 and Over	5 and Over	Under 5	0.0
1890-1894.....	64	52	60	61	62	2	0
1895-1899.....	66	34	53	63	65	1	0
1900-1904.....	66	22	46	64	66	1	0
1905-1909.....	72	3	43	66	78	1	0
1910-1914.....	79	1	36	62	81	2	0
1915-1919.....	84	0	14	65	86	25	0
1920-1924.....	88	0	1	0	67	76	19
1925-1929.....	92	0	0	2	17	69	20
1930-1934.....	93	0	0	0	3	66	24
1935.....	93	0	0	0	2	59	32
1936.....	93	0	0	0			
1937.....	93	0	0	0			
1938.....	93	0	0	0			
1939.....	93	0	0	0			

apolis). No diphtheria death and but one typhoid death has occurred in Duluth during the past four years. The health officer of Kansas City, Mo., reports but twenty-four cases in 1939, fifty-six in 1938.

The eight cities in the West South Central group (table 7) report a continued decrease in rate and have kept ahead of the East South Central group in the downward trend. The diphtheria deaths decreased from fifty-seven in 1938 to forty in 1939. The rate declined from 2.69 in 1938 to 1.88 in 1939 (from a quinquennial average of 6.55 for 1930-1934). While there is no city in the area without a death, one (Fort Worth) reports

its one death among nonresidents. Three cities (El Paso, Dallas, New Orleans) report rates in excess of 2.0. El Paso records three deaths, one among nonresidents; Dallas nine, four among nonresidents. New Orleans reports nineteen deaths, ten among nonresidents.

The Mountain and Pacific states (table 8) report forty-five deaths in 1939, a marked decrease over the seventy-four recorded in 1938 and well below the fifty-nine reported in 1937. The rate has decreased from 1.75 in 1938 to 1.05 in 1939. There are two cities (Long Beach, Portland) with no death in 1939.

TABLE 15.—Total Diphtheria Death Rates for Eighty-Eight Cities, 1923-1939 *

	Population	Diphtheria Deaths	Diphtheria Death Rate per 100,000 of Population
1923.....	31,060,848	4,078†	13.13
1924.....	31,722,841	3,439	10.84
1925.....	32,384,834	3,133	9.67
1926.....	33,046,827	3,106	9.40
1927.....	33,708,820	3,493	10.36
1928.....	34,370,813	3,176	9.24
1929.....	35,032,806	2,738	7.82
1930.....	35,694,802	1,827	5.12
1931.....	36,356,812	1,366	3.74
1932.....	37,018,712	1,191	3.21
1933.....	37,684,712	861	2.22
1934.....	38,350,712	821	2.14†
1935.....	39,016,712	764	1.96†
1936.....	39,682,712	561	1.40
1937.....	40,348,712	556	1.38
1938.....	41,014,712	473	1.15
1939.....	41,680,712	319	0.77

* The five following cities are omitted from this summary because data for the full period are not available: Jacksonville, Miami, Oklahoma City, South Bend and Utica.

† Data for Fort Worth lacking.

‡ The rate for the ninety-three cities in 1935 is 2.09 (population 37,437,812, diphtheria deaths 782). The corresponding rate for 1934 was 2.26 and the average for 1930-1934 was 3.34. The rate for ninety-three cities in 1936 is 1.51, population 39,249,034, diphtheria deaths 577.

Rate for ninety-three cities in 1937 was 1.40 (total population 38,885,435, diphtheria deaths 568).

¶ Rate for ninety-three cities in 1938 was 1.23 (total population 39,148,556, diphtheria deaths 483).

|| Rate for ninety-three cities in 1939 was 0.82 (total population 39,854,549, diphtheria deaths 323).

Special Note.—Deaths for 1936 have been corrected, as Tonkers originally reported eight deaths and later corrected report to one death.

TABLE 16.—Total Diphtheria Death Rates per Hundred Thousand of Population for Ninety-Three Cities According to Geographic Divisions

	Population	Diphtheria Deaths		Diphtheria Death Rates				
		1939	1938	1939	1938	1930-1934	1925-1929	
New England.....	2,657,824	13	17	0.49	0.64	3.33	8.34	
Middle Atlantic.....	13,602,500	46	64	0.34	0.48	2.50	9.97	
South Atlantic.....	2,622,287	41	43	1.56	1.63	3.54	7.37*	
East North Central....	9,883,376	93	153	0.94	1.54	3.66	11.21†	
East South Central....	1,864,025	27	44	1.98	3.25	6.36	6.34	
West North Central...	2,809,679	18	31	0.64	1.11	3.22	7.82	
West South Central...	2,133,496	40	57	1.83	2.69	6.53	9.24†	
Mountain and Pacific..	4,276,412	45	74	1.05	1.75	2.69	6.23	

* Lacks data for 1925 for Jacksonville and Miami.

† Lacks data for South Bend.

‡ Lacks data for Oklahoma City for 1925 and 1926.

Tacoma is charged with one death among nonresidents, although there has occurred no death among residents of Tacoma in five years. Long Beach reports no death for three years. But one city (Denver) records a rate in excess of 2.0. Salt Lake City reports a death among residents in 1939 after passing three years without such a death. Los Angeles reports twenty deaths, seven among nonresidents; San Francisco seven, six among residents. Denver reports ten deaths among residents; no record being kept for nonresidents.

Of the entire ninety-three cities there remain two with a rate of 5.0 and over (tables 9 and 14). The number of cities with no deaths from diphtheria has increased by eight; that is, from twenty-four to thirty-two. For the eighty-eight cities (table 15) for which data are available since 1923 there occurred 319 deaths from diphtheria in 1939, which is by far the lowest of record (473 in 1938). The rate for this group of cities is for the first time less than 1.0. The rate for the ninety-three cities studied in 1939 is also below 1.0 (0.82). The actual number of diphtheria deaths has decreased by 160 (from 483 to 323). This is a remarkable record.

The statements from the various public health administrators indicate that intensive protection programs are being carried on in many parts of the country. The family physician continues to become a more important part of the program and is giving more protective treatments in his own office. The evidence continues to indicate that the protection programs so extensively maintained are resulting in a very definite lower death rate from diphtheria.

THE PHARMACOPEIA AND THE PHYSICIAN

ORAL AND MEDICAL TREATMENT OF GONORRHEA IN THE MALE

P. S. PELOUZE, M.D.

PHILADELPHIA

This is one of the second series of articles written by eminent authorities for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—Ed.

It has been the hope of most of those who are interested in treatment of gonorrhea, from the standpoint both of cure of the patient and of social protection, that some type of treatment could be devised which would be so safe, simple and efficient that it could be called a "standard form of treatment." The Cooperative Clinical Group studies were of so much value in revealing the relative merits of different forms of treatment for syphilis that the Male Clinical Committee of the American Neisserian Medical Society attempted, through the questionnaire method among its members, to reach some uniform stand regarding the treatment of gonorrhea. So successful were the results of this inquiry that a scheme of treatment was worked out for this disease in the male which looked as though it would accomplish the purpose. Then came sulfanilamide to make the plan look, for a season, as though it were a relic from by-gone ages. A subject which was always confusing became doubly so in that men's minds were wooed away from the local attack of a largely local disease.

Today there is, perhaps, enough that is clinically reliable to warrant one saying that this drug alone will bring about prompt cure in from 25 to 40 per cent of dispensary patients, from 45 to 55 per cent of office patients and, perhaps, from 75 to 85 per cent of bed patients. There are actual data to show that many patients whose symptoms disappear still harbor

GONORRHEA IN THE MALE—PELOUZE

the gonococcus and transmit infection. And there are many cases in which sulfanilamide causes no curative response whatever, cases in which one must rely on older and more tried methods of treatment if one is to promote cure. As one strikes an average, it is obvious that this is true of approximately half of all male infections. And, as there are millions of infections every year, it can be seen that the committee of the American Neisserian Medical Society was not making a collection of antiques when it labored to set up a "standard form of treatment."

Following the introduction of sulfanilamide a number of other sulfonamide derivatives have been produced, some of which have shown as much curative value as has sulfanilamide itself. One, sulfapyridine, has been spoken of even more glowingly and there is accumulating evidence to suggest that it is somewhere between 25 and 50 per cent more efficient than sulfanilamide. Its cost, however, is such that it is far beyond the financial reach of dispensary patients. To date, only sulfanilamide and sulfapyridine are on the market. It is earnestly to be hoped that a way may be found to reduce the price so that both the poor and the near poor may share the benefits.

At least two of the other sulfonamides now being experimentally used for gonorrhea have shown an unfortunate tendency to produce peripheral neuritis. Because of the unfortunate limitations to the general use of sulfapyridine it might be just as well to consider sulfanilamide rather fully, realizing that what is true of it from the standpoint of toxicity and other features, aside from the obtainable percentage of cures, apply equally to the former drug in equal doses. It, however, should be stated that sulfapyridine rarely is given in larger doses than 4 Gm. in the twenty-four hours. And no dissertation on any sulfonamide derivative used so far would be complete without the warning that these preparations bear toxic possibilities.

Beyond a doubt, much of the toxic picture could be obliterated if sulfanilamide medication was stopped just so soon as it obviously was failing to produce cure. Practically all the favorably influenced males are symptom free by the end of the fifth day. If such a change has not occurred in that length of time it is extremely rare for further administration to be of benefit. In other words, it is perfectly safe to consider the patient who is not almost entirely free from symptoms then as a sulfanilamide failure and stop the drug.

Later courses of sulfanilamide almost never have a controlling effect in the same case, but it has been shown that sulfapyridine used for those patients who have obtained no curative effect from sulfanilamide uncommonly exercise a favorable response.

There are many schemes of dosage for sulfanilamide in this disease, most of which have been aimed at a prompt high concentration of blood which later can be maintained on a reduced dosage. That blood concentration is not the sole consideration is shown by the experiences of Van Slyke, Thayer and Mahoney, who numbered some of their successes among cases showing the lowest blood concentrations and some of their failures among those in which the concentration was enormous.

Perhaps the most common scheme of dosage in use in ambulant patients is 80 grains (5 Gm.) a day for two days, 60 grains (4 Gm.) a day for the next three days and a later continued daily dosage of 40 grains

(2.5 Gm.). Many clinicians consider this too high and use 60 grains a day for three or four days and a maintenance dose of 40 grains a day thereafter. Others claim successes in equal measure on 45 grains (3 Gm.) a day for eight days and a maintenance dose of 20 grains (1.3 Gm.) a day thereafter. In bed patients, on whom the most dependable figures have been obtained, the initial dose was 120 grains (8 Gm.) a day for several days and then a gradual reduction of the dosage. To such patients the drug has been given in doses so spaced as to prevent low blood concentration during the night. Some have given larger doses at bedtime to ambulant patients for the same purpose. Many administer sodium bicarbonate in half the quantity with each dose. Sulfanilamide should be discontinued if it produces any marked symptoms of toxic action, and it never should be given to patients who cannot be seen by the physician at most every forty-eight hours. Because of its possible production of dizziness, it should be given with extreme caution or not at all to men in hazardous occupations.

From the foregoing it will be seen that much of the problem remains exactly as it was before the introduction of sulfanilamide. There is the same need for an understanding of the disease itself and those methods of treatment which have stood the test of time. By a sensible combination of the two one has no need for depression or the development of a defeatist attitude. In fact, the physician is standing on far better ground than he did a short time ago, for it has been shown beyond any doubt that, even in those cases in which sulfanilamide does not bring about cure, its use early in the disease almost invariably makes it a milder disease thereafter and enormously reduces the likelihood of serious complications.

There are a number of facts that one should have constantly in mind regarding gonorrhea. These might be stated briefly as follows:

1. Gonorrhea is a disease of tissue penetration by the gonococcus wherein the germs reach tissue depths far out of the bactericidal powers of the drugs applied locally.
2. Cure is brought about by the patient's own tissue processes.
3. These can be enhanced by the direct application of mild chemical solutions to the infected regions and the promotion of better drainage.
4. Certain factors greatly reduce or obliterate these tissue responses, namely the ingestion of alcoholic beverages, sexual excitement, prolonged physical exertion and the inhalation of the fumes of alcohol, ether, and perhaps some other substances.
5. Thus the one "priceless ingredient" of all curative effort is patient cooperation to the end that these circumstances do not occur.
6. The greater the patient cooperation and the gentler the treatment (within limits), the milder and shorter is the disease and the fewer are its complications.
7. Treatment of this disease is entirely empirical in that we have not the slightest knowledge of just how it accomplishes its purpose.
8. Traumatic methods have no place in treatment; they prolong disease and precipitate complications.
9. Aside from sulfanilamide and its companion drugs, oral medication has been signally lacking in curative influences.

10. Some drugs, notably oil of santal, at times reduce discharge and discomfort, though they exercise no definite curative effect.

Many drugs have been employed for the local treatment of gonorrhea, but year after year these gradually have been reduced in number until today we find but a few that are in general use. Countless numbers of these have fallen into disuse because of the extravagant claims that their introducers made for them or the fact that many of them bore proprietary names and differed so little from pharmacopeial drugs that their higher cost was not merited. I need fear no successful contradiction if I make the statement that none of the proprietary preparations of silver are of more value in the local treatment of this disease than are those in the pharmacopeia. Of the drugs most commonly used for local treatment to the mucous membranes of the urinary tract, together with their most appropriate strengths, might be mentioned those in the accompanying table.

There are times when it is wise to use oral sedatives either for the prevention of penile erections or for the relief of pain and vesical discomfort. For the former, sodium bromide in doses of from 10 to 15 grains (0.6 to 1 Gm.) at night is rather commonly used. For sensory disturbances some form of opium is to be preferred. Of these, camphorated tincture of opium in drachm (4 cc.) doses or tincture of hyoscyamus in from 15 to 20 minim (1 to 1.3 cc.) doses usually suffice for the milder symptoms. For the more severe, codeine in from one-fourth to one-half grain (0.016 to 0.032 Gm.) doses, morphine in from one-eighth to one-fourth grain (0.008 to 0.016 Gm.) doses or rectal suppositories containing one-fourth grain of belladonna and 1 grain (0.065 Gm.) of powdered opium may be required. Some urge the value of mild alkalis and more generally use either potassium acetate or citrate in doses of from 10 to 20 grains (0.65 to 1.3 Gm.).

Drugs Most Commonly Used for Local Treatment of Gonorrhea

	Strengths	Best
Potassium permanganate (U. S. P.)....	1:10,000 to 1:3,000	1:8,000
Mild protein silver (U. S. P.).....	3 to 10 per cent	5 per cent
Strong protein silver (U. S. P.).....	0.25 to 1 per cent	0.5 per cent
Acriflavine (U. S. P.).....	1:5,000 to 1:1,000	1:3,000
Silver nitrate (U. S. P.).....	1:10,000 to 1:1,000	1:5,000

Regarding the use of chemicals to the urethra and bladder by means of injections or irrigations by hand, there are a number of facts that should be borne in mind, the most important of which are as follows:

1. One or two applications in twenty-four hours usually is of greater benefit than a larger number.

2. All applications cause a purulent response from the anterior urethra and if their response lasts more than an hour or two the chemical is too strong for the given urethra and its strength should be reduced.

3. All chemicals used over too long a period have a tendency to keep up the urethral discharge.

4. The appearance of many epithelial cells in the urethral discharge is positive evidence that the medication is too strong or has been used for too long a time.

5. Fluids should not be injected into the posterior urethra if only the anterior portion is infected.

6. If fluids are to be held in the anterior urethra without being forced into the posterior urethra, the quantity injected should not exceed 6 cc.

7. If fluids are to be injected into the posterior urethra, it should be done either by low hydrostatic pressure or with the utmost gentleness by means of a bulb syringe with a blunt nozzle.

8. No instruments of any kind should be passed into the canal while the gonococcus is present.

9. Sudden marked changes for the worse in the patient's condition almost invariably denote poor cooperation.

10. The two glass test, properly interpreted, is the simplest way of following the course of the disease.

11. The amount of clouding of the voided urine is a safe index of the activity of the infection.

12. Even in the most favorable of the sulfonamide cases the urine becomes clear before the disease is cured. Hence a clear urine is by no means an evidence that the gonococcus has been eradicated.

As an appropriate scheme of treatment for this disease it is felt that a sulfonamide derivative in one of the suggested dosages might be given for the first five days. If at the end of this time the patient has no urethral discharge and has a clear urine, a maintenance dose of the drug should be continued for ten days longer, in the absence of toxic symptoms. If the local symptoms do not abate or if the drug must be stopped, the accompanying plan should be followed, which plan, with a few slight alterations, is that appearing in the 1937 *Proceedings of the American Neisserian Medical Society*.

PLAN OF TREATMENT

Anterior Urethritis.—1. After urination the anterior urethra is cleansed with 1:10,000 to 1:5,000 solution of potassium permanganate either by low pressure irrigations or by gentle hand injections by means of a syringe.

2. By means of a bulb syringe not more than 6 cc. of a 5 to 10 per cent solution of mild protein silver (U. S. P.) or from 0.25 to 0.5 per cent strong protein silver (U. S. P.) is injected into the urethra and kept there for five minutes. (The weaker strengths are better.)

3. Such treatments are carried out daily until there is no urethral discharge and then every other day. If the latter interval proves too long, as evidenced by the recurrence of discharge, daily treatments should be resumed for a few days and the interval again increased. Later, when safe to do so, the interval is increased to every third day.

4. If the patient cannot visit the physician frequently enough for this regimen to be carried out, a one-eighth ounce glass syringe and 0.25 or 0.5 per cent solution of strong protein silver (U. S. P.) is ordered with instructions to use it twice a day.

5. It is safest not to try the ordinary tests of cure for patients under either of these two plans of treatment before the end of the fifth week in the most favorable of cases. (This does not apply to the real or seeming sulfonamide successes.)

6. Every effort should be made to obtain the patient's cooperation and no local treatment should be placed in his hands without the most explicit instructions as to their proper use.

7. Such patients should have described to them the symptoms of posterior urethral involvement and told to stop local treatment and present themselves at the physician's office if they occur.

Posterior Urethral Involvement.—1. Local urethral treatments should be stopped until the acute symptoms subside.

2. Acute symptoms can be controlled with sedatives and hot hip-baths.

3. After vesical comfort has been regained entirely, low pressure intravesical irrigations of potassium permanganate solution should be given at intervals of two or three days.

4. Prostatic or seminal vesicular manipulations should be avoided until the second glass of urine is clear and the first is almost clear.

COUNCIL ON PHYSICAL THERAPY

5. One should start massage with the very gentlest prostatic strokings and, if it causes a return of urethral discharge, one should wait a week before trying again. If it causes no such recrudescences of symptoms it should be repeated at intervals of from three to four days, the pressure being gradually increased at subsequent visits but never reaching a point of roughness.

6. The massages should be continued at these intervals until the prostatic secretion is free of pus.

7. During the first month or six weeks of prostatic massage it is well to carry out a preliminary intravesical irrigation, some of the solution being left in the bladder to be voided after the massage. If after this time the irrigations are discontinued, there rarely will be any shreds in the urine when the patient is ready for dismissal.

TESTS OF CURE

The use of sulfanilamide in gonorrhea has thrown a deep cloud of uncertainty over the older tests of cure. So true is this as to make it absolutely necessary to use methods that formerly were little needed in the male. Before this drug came into use one was almost 100 per cent safe in pronouncing a patient cured who had no urethral discharge and in whom a discharge could not be made to occur by the ingestion of alcohol, sexual excitement, the passage of a sound with massage of the urethra or whose discharge occasioned by a provocative injection of 1 per cent silver nitrate failed to show the gonococcus.

On those patients seemingly cured by sulfanilamide these simple procedures are sadly lacking in value, for such patients rarely experience a recrudescence of symptoms after the three first procedures, and their discharges commonly fail to show gonococci after the use of silver nitrate even though the gonococcus is present in the tissues. The safety of the patient and the protection of his possible contacts demand more careful tests of cure than these. In them the most careful and repeated searches of the washed sediments of the first urine voided following the aforementioned tests of cure should be carried out. Before such urine is voided the prostate, seminal vesicles and urethra should be stripped, so that their fluids are in the urine. Added to this, cultures for the gonococcus assume a place of enormous importance. And, no matter how carefully all these tests are carried out, some infected persons are almost sure to be passed back into sexual activity. Complement fixation tests are of little aid in the pronouncement of cure.

Because of the inferential character of all tests of cure, every patient should be warned against coitus without the use of a condom for some weeks after supposed cure.

OTHER TREATMENTS

An article such as this would be incomplete if no mention was made of biologic substance such as vaccines, filtrates and antitoxins, and prolonged hyperthermia. The biologic substances can be dismissed with the statement that, as a class, they have given about the poorest results of any seemingly sensible treatment. Prolonged hyperthermia cannot be dismissed in so summary a fashion. That prolonged elevations of the body temperature above 106 F. will cure gonorrhea in many cases is beyond question. That lower temperatures are less efficient and require more sessions of treatment also is established. It is equally certain that the method has dangers that are not to be viewed lightly and a mortality far greater than has the disease itself. The method requires equipment, trained personnel and

time, which puts it out of the reach of the masses except, perhaps, when it is done experimentally. It is the opinion of Carpenter and Warren and their co-workers, who have done the most scientific work along these lines to date, that, in the male, it should be used for only those patients who resist cure by other methods and in the treatment of the graver complications of the disease. Such a view limits the urgent need for prolonged hyperthermia to a point where a physician has no cause to feel that he is guilty of denying his patient the best because he does not urge it. Almost all cases of gonorrhea in the male can be cured by other means and few of the complications, other than arthritis, are of such gravity or so resistant to treatment that they do not subside within a short time under less dangerous and less uncomfortable modes of attack.

1737 Chestnut Street.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.
HOWARD A. CARTER, Secretary.

THE COUNCIL WISHES TO EXPRESS ITS APPRECIATION FOR THE VALUABLE ASSISTANCE RENDERED IN THE PREPARATION OF THIS REPORT BY DRs. C. C. BUNCH, GEORGE M. COATES, EDWIN P. FOWLER, AUSTIN A. HAYDEN, ISAAC H. JONES, DOUGLAS MACFARLAN, C. STEWART NASH, HORACE NEWHART, BURT R. SHURLY AND WILLIAM P. WHERRY.
HOWARD A. CARTER, Secretary.

TENTATIVE MINIMUM REQUIREMENTS FOR ACCEPTABLE ELECTRIC HEARING AIDS

A hearing aid to be acceptable to the Council on Physical Therapy of the American Medical Association must substantially improve the hearing of the deafened ear for which it is prescribed or fitted. Firms shall meet the following:

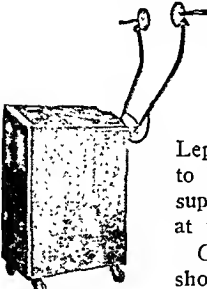
1. Hearing aids shall have imprinted on each transmitter, air or bone conduction receiver a model number (type or class) or some equally suitable identification.
2. The manufacturer shall supply the Council on Physical Therapy with a graph giving the amount of amplification in decibels at semioctave intervals of C from 256 to 4,096. Tests should be made for any peaks or valleys between these points and if found should be specified.
3. The manufacturer shall state the voltage and current consumption at maximum setting.
4. The hearing aid shall be reasonably free from disturbing noises (sizzling, frying, humming, clicking and whistling sounds).
5. The manufacturer shall furnish to the Council a copy of its guaranty to the consumer.
6. There shall accompany each hearing aid clearly written instructions for its use.
7. The manufacturer shall give evidence that adequate facilities for servicing the instruments are available and shall furnish names and addresses of servicing agencies.
8. The manufacturer shall agree to furnish from stock to the Secretary of the Council on Physical Therapy a hearing aid for inspection and test. On the request of the Secretary, the manufacturer shall supply him with an order on any of the authorized agents for an instrument for tests. On the completion of tests, the instrument shall be returned complete to the manufacturer.
9. All material used in manufacture shall be of first grade and the workmanship skilfully performed.
10. The firm shall be responsible for the ethical merchandising practices and financial status of their agents, sales representatives and service men. The standards of merchandising and the acceptability of advertising shall meet the Rules of the Council on Physical Therapy.

These requirements go into effect Jan. 1, 1941.

LEPEL SHORT WAVE MACHINE,
MODEL TC, ACCEPTABLE

Manufacturer: Lepel High Frequency Laboratories, Inc.,
39 West Sixtieth Street, New York.

The Lepel Short Wave Machine, Model TC, is used for medical and surgical diathermy in the office or hospital. It is a single cabinet model with dimensions of 38 by 24 by 16 inches and weighs approximately 175 pounds. Condenser electrodes, induction cable, air-spaced electrodes and direct contact metal electrodes (an unusual method of short wave application) are included with the unit.



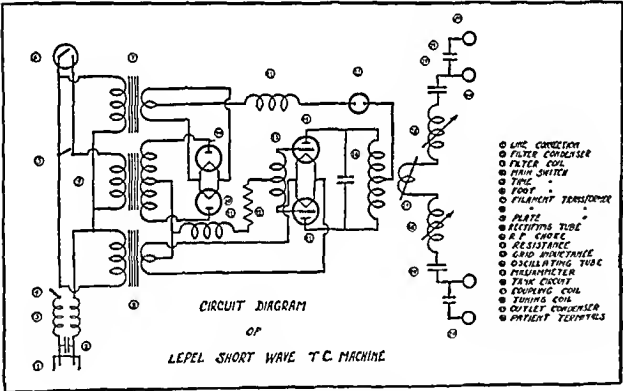
Lepel Short Wave Machine, Model TC.

Providing a 12 meter wavelength, the unit employs four tubes in what is stated by the manufacturer to be an individual Lepel circuit. It operates on 60 cycles, 105 to 130 volts. Precautions have been taken to suppress radio interference by installing filters at various locations in the circuit.

Outlets are provided for electrosurgery and short wave treatment; ultraviolet quartz lamps may also be energized from the treatment terminals. A time switch may be set to cut off treatment periods automatically.

Investigations under the auspices of the Council demonstrated an output of 400 watts by the lamp load method and with a maximum input of 1,200 watts. The temperature of the transformer after two hours of continuous operation at full load came within the limits of safety.

The manufacturer furnished tests from a reliable physician regarding the capacity of the unit to produce heat deep within



Schematic diagram of circuit.

human tissue. The period of current flow in each application was twenty minutes. The technic and results were as follows:

Air Spaced Flexible Disk Electrode Technic: The diameter of the disk was 7 inches, space under the disk 1¼ inches, and distance between the nearest edges of the disks 5 inches; the average thigh circumference was 18½ inches, average room temperature 77 F. and average room humidity 49. The average temperatures (F.) of six observations are given in table 1.

TABLE 1.—Observations with Air Spaced Flexible Disk Electrode Technic

Deep Muscle		Rectal	
Initial	Final	Initial	Final
97.5	105.9	99.6	99.8

Cuff Technic: The upper cuff was 1½ by 17¼ inches, the lower cuff was 2 by 14½ inches, and the distance between the nearest edges of the cuffs was 5 inches. The space under the cuffs in test 1 was one-half inch; in test 2, 1¼ inches; in test 3, 1¼ inches; in test 4, 1½ inches; in test 5, 1¼ inches, and in test 6, 1¼ inches. The average thigh circumference was 19 inches, the average room temperature was 74 and the average room humidity 36. The average temperatures (F.) of six observations are given in table 2.

Coil Technic: The number of turns was five and the distance between the turns was 1 inch. The average thigh circumference was 19¾ inches, the average room temperature 74.5, and the average room humidity was 42. The average temperatures (F.) of six observations are given in table 3.

TABLE 2.—Observations with Cuff Technic

Deep Muscle		Rectal	
Initial	Final	Initial	Final
98.3	105.6	99.3	99.2

TABLE 3.—Observations with Coil Technic

Deep Muscle		Rectal	
Initial	Final	Initial	Final
96.5	105.0	99.5	99.8

Metal Contact Plate Technic: The width of the plate was 5½ inches, the length of the plate 8 inches, the average thigh circumference 19½ inches, the average room temperature 76 and the average room humidity 45. The spacing between the nearest edges of the plates in test 1 was 2¾ inches; in test 2, 5 inches; in test 3, 4¾ inches; in test 4, 4½ inches; in test 5, 4½ inches, and in test 6, 4½ inches. The average temperatures (F.) of six observations are given in table 4.

TABLE 4.—Observations with Metal Contact Plate Technic

Deep Muscle		Rectal	
Initial	Final	Initial	Final
99.3	106.2	99.4	99.7

TABLE 5.—Observations with Air Spaced Electrode Technic

Deep Muscle		Rectal	
Initial	Final	Initial	Final
99.4	105.2	98.6	99.7

Air Spaced Electrode Technic: The diameter of the disks was 7 inches, the space under the disks 1¼ inches, and the distance between the nearest edges of the disks 5 inches. The average temperatures (F.) of two observations are given in table 5.

Metal Contact Electrode Technic: The oval plates were 5½ by 8 inches and the distance between the nearest edges was 4½ inches. The average temperatures (F.) are given in table 6.

TABLE 6.—Observations with Metal Contact Electrode Technic

Deep Muscle		Rectal	
Initial	Final	Initial	Final
98.2	105.2	98.1	98.4

TABLE 7.—Observations with Pelvic Diathermy

Initial	Final
97.5	110.1

Six clinical reports of pelvic diathermy submitted by the firm are abstracted as follows:

Treatments were administered with an average size metal vaginal electrode and a dispersive pad at a spacing of 16 to 18 inches. The dosage was determined by the temperature rise indicated by a thermometer inserted in the stem of the vaginal electrode. Treatment was not continued beyond the patient's sense of comfortable toleration. Temperatures were read every one or two minutes for twenty minutes. The averages of six observations are given in table 7.

The apparatus was placed in a large clinic acceptable to the Council for test and was reported satisfactory.

The Council on Physical Therapy voted to accept the Lepel Short Wave Machine Model TC for inclusion in its list of accepted devices.

COUNCIL ON PHARMACY AND CHEMISTRY

1883

SYNCHROTONE NOT ACCEPTABLE

Manufacturer: Hallberg's Synchrotone Incorporated, 572 Madison Avenue, New York.

The Synchrotone is a short wave device which has come to the attention of the Council because of the unfounded and misleading advertising used in its promotion. In a folder called "Ultra Short Wave Therapy from the Selective Aspect" the most objectionable feature is the repeated claim that specific wavelengths have been definitely established as being valuable in the treatment of specific diseases, and that the effects of the various wavelengths are achieved independently of heat. Therapy by the apparatus is called "selective athermal." It is stated "There is no question about the effectiveness of certain wavelengths in specific cases" and "It is believed that polarity reversal may account for the effect of certain wavelengths upon specific cells in cases of malignancies because of the possible effect of specific wavelengths in altering the external and internal electrical polarity and potential re- tions of cells, thus giving control of ϕn values to have been dis- control of osmotic functions." It is claimed to have been dis- covered and verified "that with Synchrotone 2.5 and 4.5 meter apparatus the wave possesses the power to reverse the polarity of body electrical potentials."

According to the advertising, the device is portable and may be obtained either in a three tube "Special Model" weighing 16½ pounds or a one tube "Junior Model" weighing 11½ pounds. The Special Model is said to operate at 115 volts 60 cycles and to have an output of 150 watts. It provides a wavelength between 2.75 and 4.75 meters and it is claimed that, "To obtain the specific effects desired, waves between 2.5 and 4.5 meters are recommended as clinical experience of many physicians has proven." The Council has no evidence this point and the firm cites no specific examples to uphold its claim.

It is further claimed that the "Synchrotone will be found quite capable of supplementing the more powerful U. S. W. apparatus," despite its so-called "athermal" type of therapy. It is asserted that "it is safe to state that the belief that 'heating is the only therapeutic effect' from radio waves is rapidly weakening" and "The selective low intensity and low temperature ultra high frequency treatments, so specifically emphasized by Hallberg, are finding widespread recognition among physicians here and abroad." No evidence for these assertions was cited or is known to the Council. Finally, it is indirectly implied that the Synchrotone may be used on a variety of ills for which the Council accepts no precedent in short wave therapy. Thus, Dr. J. Samuels is given as an authority for the use of "heatless radio waves . . . for diabetes and to relieve malignant conditions by the treatment of the pituitary, thyroid and gonads. X-rays and Radium are not used and no attempt is made to radiate the tumor as it is considered secondary to the systematic condition. The hor- mone stimulation of the different glands mentioned is accom- plished entirely without heat generation in the body." Among other "important authorities," Schereschewsky is said by Mr. Hallberg to have experienced a "selective effect in ultra short wave therapy." But he neglects to point out that Schere- schewsky later withdrew these claims.

Mr. J. Henry Hallberg is credited by the folder as being the main discoverer of the value of specific ultra short wave therapy. He is called "the father of the ultra short wave specific therapy in the world" and, it is said, "The first to make public the physiological therapeutic possibilities of vacuum tube generated radio waves was J. H. Hallberg." He stated that he had reported some of his observations to the "Physio- Therapeutic branch of the A. M. A." No such branch is known.

Mr. Hallberg also promotes an "Alkaline (ϕn) Testing Outfit for the Human Body." A drop of the indicator solu- tion when placed in the center of the palm is said to indicate the "alkaline condition," or by the same solution the "absolute condition" of the urine or "other secretions of the body" may be indicated. Mr. Hallberg states that "This outfit is really a check-up on the system and when used in conjunction with my blanks for Acid or Alkaline Diet Control, giving the values

for almost all essential foods, permits anyone to select the correct food combinations for maintaining almost any desired alkaline condition of the system."

The Council on Physical Therapy voted not to accept the Synchrotone for inclusion on its list of accepted devices because of the misleading and unscientific promotional methods of the firm, which encourage irrational therapeutic practices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CON- FORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

SODIUM CACODYLATE (See New and Nonofficial Remedies, 1939, p. 104).
The following dosage forms have been accepted:

- Ampuls Sodium Cacodylate-Maltbie*, 0.1 Gm. (1½ grains) 1 cc. Prepared by the Maltbie Chemical Co., Newark, N. J.
- Ampuls Sodium Cacodylate-Maltbie*, 0.2 Gm. (3 grains) 1 cc. Prepared by the Maltbie Chemical Co., Newark, N. J.
- Ampuls Sodium Cacodylate-Maltbie*, 0.325 Gm. (5 grains) 1 cc. Prepared by the Maltbie Chemical Co., Newark, N. J.
- Ampuls Sodium Cacodylate-Maltbie*, 0.5 Gm. (7½ grains) 5 cc. Prepared by the Maltbie Chemical Co., Newark, N. J.
- Ampuls Sodium Cacodylate-Maltbie*, 1.0 Gm. (15½ grains) 5 cc. Prepared by the Maltbie Chemical Co., Newark, N. J.

BISMUTH SUBSALICYLATE (See New and Non- official Remedies, 1939, p. 141).
The following dosage forms have been accepted:

- Ampones Bismuth Subsalsicylate with Chlorobutanol in Oil*, 1 cc.; Each cubic centimeter contains bismuth subsalsicylate-U. S. P. 0.13 Gm. (2 grains) and chlorobutanol 0.03 Gm. (0.46 grain), suspended in sweet almond oil. Prepared by the Upjohn Company, Kalamazoo, Mich. No U. S. patent or trademark.
- Bismuth Subsalsicylate with Chlorobutanol in Oil*, 30 cc. Vials: Each cubic centimeter contains bismuth subsalsicylate-U. S. P. 0.13 Gm. (2 grains) and chlorobutanol 0.03 Gm. (0.46 grain), suspended in sweet almond oil. Prepared by the Upjohn Company, Kalamazoo, Mich. No U. S. patent or trademark.

DECHOLIN SODIUM (See New and Nonofficial Reme- dies, 1939, p. 134).
The following dosage form has been accepted:

- Ampoules Solution Decholin-Sodium*, 20 per cent, 3 cc. Distributed by Riedel de Haen, Inc., New York.

UREA (See New and Nonofficial Remedies, 1939, p. 480).
The following product has been accepted:

- Urea Pure Crystals-Mallinckrodt*.—A brand of urea- N. N. R. Manufactured by Mallinckrodt Chemical Works, St. Louis, Mo. No U. S. patent or trademark.

DEXTROSE (See New and Nonofficial Remedies, 1939, p. 160).
The following products have been accepted:

- The Drug Products Company, Inc., Long Island City, New York.*
- Hyposols Dextrose* 10 Gm. (Buffered), 20 cc.; Each hypsol contains 20 cc. of a solution containing dextrose-U. S. P. 10 Gm. buffered with sodium biphosphate 18 mg. and sodium phosphate dibasic 6 mg.
- Hyposols Dextrose* 25 Gm. (Buffered), 50 cc.; Each hypsol contains 50 cc. of a solution containing dextrose-U. S. P. 25 Gm. buffered with sodium biphosphate 45 mg. and sodium phosphate dibasic 15 mg.

COD LIVER OIL (See New and Nonofficial Remedies, 1939, p. 506).
Stearns Cod Liver Oil.—It has a vitamin A potency of not less than 850 units (U. S. P.) per gram and a vitamin D potency of not less than 85 units (U. S. P.) per gram.

Dosage.—Two teaspoons daily or as directed by the physician. Prepared by Frederick Stearns & Company, Detroit. No U. S. patent or trademark.

THIAMIN CHLORIDE-SQUIBB (See New and Non- official Remedies, 1939, p. 499).
The following additional dosage form has been accepted:

- Tablets Thiamin Chloride-Squibb*, 10 mg.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

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SATURDAY, MAY 11, 1940

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.
2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.
3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.
4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.
5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.
6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.
7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.
8. Expansion of public health and medical services consistent with the American system of democracy.

WAGNER-GEORGE HOSPITAL BILL AS REPORTED TO THE SENATE

Elsewhere in this issue of THE JOURNAL (page 1927) appears an analysis of the hospital construction bill reported favorably, and it is understood unanimously, by the Senate Committee on Education and Labor, April 30. The committee retained some of the provisions of the original Wagner-George bill, inserted some of the provisions of the Taft plan, and added other provisions of its own. Some of the suggestions advocated by representatives of the American Medical Association and of hospital associations are found in the reported bill. The National Advisory Hospital Council will assume a more important role than was contemplated in the original Wagner-George bill only during the first year of the operation of the program, for only with respect to applications for hospital projects to be undertaken with appropriations to be made available during that year will the approval of the council be necessary. Grants for maintenance are contemplated if the

financial resources of the applicant are insufficient to maintain and operate the hospital adequately. During the first year of the operation of the program, the bill proposes that hospital projects shall be financed by the federal government and leased to the applicant, the title to such projects eventually being conveyed to the lessee. After the first year, federal grants will be made available for five years to assist applicants to construct hospital facilities, the title to which shall remain in the applicant. The bill still leaves in considerable doubt what disposition shall be made of hospital projects the leases for which shall have been canceled, but the fact that grants for maintenance are contemplated may minimize the probability of lease cancellations. The definition of the term "hospital" included in the bill is a synthetic one and raises the question as to whether "hospitals" constructed under the bill are to enter into the practice of medicine; one does not ordinarily consider a hospital as including "health, diagnostic or treatment centers, the equipment thereof, and facilities relating thereto." The fact that additions to existing hospital facilities, as well as the building of new hospitals, will be possible under the reported bill constitutes an improvement over the original proposal. As previously pointed out in THE JOURNAL, this federal program for hospital construction places a grave responsibility on the Surgeon General of the Public Health Service, but that responsibility can well be shared with the National Advisory Hospital Council, particularly if the members selected by the Surgeon General with the approval of the Federal Security Administrator actually include leading medical and scientific authorities "who are outstanding in matters of hospitals and other public services."

The Senate Committee on Education and Labor, in reporting this bill, said that the hospital building program was only a step toward the solution of health problems which have received the attention of the committee for the last several months. The program is designed to fit into a more comprehensive plan being formulated by the committee.

The committee's report emphasized the belief that in proposing legislation to promote hospital construction the President had a broader vision of purpose than the mere supplying of beds on which the sick may lie. The hospital as a public diagnostic center, the report continues, enables the physician to provide a better service in the home and for the ambulatory sick treated in his private office. Through its laboratory the hospital offers the means for services essential to the saving of lives, such as the immediate typing of sputum in pneumonia, the rapid determination as to whether cancer exists in excised tissues, the pathologic nature of the body fluids and excretions, and other determinations which make diagnoses scientifically accurate. With a hospital as a collecting point and with facilities for making such special tests as he may require, a specialist can, in the opinion of the committee, on a single visit to a community give advice and assistance

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to numerous patients brought to his attention by local physicians. The county health officer can best control an epidemic when he has laboratory facilities to detect the carriers of infection and the isolation facilities for segregating the sick, and the county public health nurse can best help to prevent tuberculosis when she knows which member of the family or what associate is a carrier. The hospital will provide the sputum examination and the x-ray examination on which such knowledge is based.

The committee refers to statistics to show that among the counties of the United States 1,338, with a population of 17,000,000, do not contain a registered general hospital. The report fails to state, however, how many of such counties have accessible general hospitals near enough so that the needs of such counties may be adequately served. According to the committee the provisions of the reported bill will apply to communities where adequate facilities do not exist and where there is no evidence that in the normal course of events private hospital construction will ever meet community needs. The committee predicates its approval of the reported bill on its acceptance of the premise that it is a function of government to preserve the person as well as the property of man and that there can be no national progress except through promoting the health and welfare of the citizens of the nation.

INFECTION AND IMMUNITY IN VIRUS DISEASE

Virus infections progress from one host to another by methods already familiar in bacterial and protozoan diseases. Some are transmitted by direct contact through the skin and mucous membranes, others are spread by secretions from the upper respiratory tract, by the bites of insects and by coitus. There is, however, a general absence of virus diseases of the gastrointestinal tract of man.

The basic immunologic phenomena of virus diseases are also similar to those operative in other fields of biology. Some virus diseases—for example rabies and vaccinia—attack many species of hosts; others are highly specific for certain species.¹ Climate, sex, age, nutrition and genetic factors have all been shown to enter into the picture of natural immunity to certain virus infections. In man recovery from virus infection is usually followed by enduring active immunity, which in many instances may be operative during the remainder of an individual's life. Exceptions to this rule are the common cold and herpes, or fever blisters. Associated in most, but not in all, instances of the development of active immunity against viruses is the appearance of humoral antibodies in the serum of those who are immune. It appears, however, that the pres-

ence of demonstrable amounts of neutralizing antibodies and immunity or resistance to virus diseases do not necessarily parallel each other. These facts indicate that the presence of humoral antibodies does not wholly explain the immunity to virus infections.

A curious aspect of the problem of immunity is contributed by the present knowledge of latent virus infections. Andrewes,² in his presidential address before the Section of Comparative Medicine of the Royal Society of Medicine, considers several varieties of such latent infections. After an overt attack of a virus disease, he points out, the responsible agent may continue to be harbored by a host long after the disease symptoms have disappeared. Poliomyelitis virus, for example, has been recovered from nasal washings of man during convalescence. Indeed, he says that many have sought to explain the long continued immunity which follows many virus infections as being an infection immunity, i.e. an immunity which persists only because the virus has never been completely eliminated from the body. Andrewes also calls attention to what he calls "indigenous" plant and animal viruses. Latent plant virus infections may render the host plant refractory to infection with a related but more virulent strain of virus. Among the indigenous animal viruses he mentions lymphocytic choriomeningitis in mice, herpes simplex, virus III of rabbits, mouse pneumonia viruses and the complicated swine influenza virus. The fundamental contributions to be made by studies of latent virus infections appear to be still in their infancy.

It is now known, as pointed out by Gordon in the Harvard Symposium,³ that most viruses have distinct host preferences, and the clinical disease produced in that host is fairly well stabilized. Thus the effect of neurotropic yellow fever virus on the rhesus monkey is not that of the native pantropic strain. The peculiar and unusually severe pneumonia that characterizes human infection with the virus of psittacosis lacks a counterpart in the disease of the natural host. Such factors play a definite part in the resistance both of the individual and of the community and thereby affect both endemic and epidemic patterns.

The most promising preventive measures thus far developed depend on the use of convalescent serums and vaccines. At present the immune serum in most widespread practical use is probably that which has been developed for measles. Attempts to employ immune serums have been made also in other virus diseases such as poliomyelitis. Vaccines have proved hopeful in a number of diseases of this group. The methods devised for the cultivation and preparation of vaccinia virus may be extended to investigations on other virus diseases.

1. Rivers, Thomas M.: *Viruses and Virus Diseases*, Lane Medical Lectures, Stanford University Press, 1939.
2. Andrewes, C. H.: *Latent Virus Infections and Their Possible Relevance to the Cancer Problem*, Proc. Royal Soc. Med. 33: 75 (Dec.) 1939.
3. Gordon, John E.: *Epidemiologic Problems in Virus Diseases*, in Harvard School of Public Health Symposium Volume, Harvard University Press, 1940.

Finally, no account of active measures for producing immunity would be complete without mention of recent developments in the prevention of yellow fever by means of vaccines. After many attempts, during most of which it was necessary to include the use of immune serum with the vaccine, a culture was finally obtained which, after suitable testing, has been employed on more than a million individuals. Untoward results have not occurred and there is every reason to believe that the vaccine is efficacious. This vaccine was developed by means of tissue culture methods. Attempts to employ chemotherapy in certain virus diseases have achieved no notable successes. Most reports of the use of sulfanilamide or its derivatives have been discouraging, but with the frequent discovery of new chemical compounds it is still possible that effective chemical methods of treatment may be developed.

THE PUBLIC BE WARNED

Recently preparations containing sex hormones have been promoted to the public with extraordinary enthusiasm. Principal among these are preparations containing female sex hormones. Elsewhere in this issue is an article by Eller and Wolff¹ reviewing the present status of hormones and vitamins in cosmetics.

THE JOURNAL has fought for years against the indiscriminate promotion to the public of preparations which are dangerous or potentially dangerous, as well as those for which value has not yet been established. THE JOURNAL's activities in this respect have been in the interests of the public health. A substance which may be exceedingly useful in the hands of physicians could gain ill repute from untoward effects following its promiscuous, ill advised and unwise use in self medication by the layman. THE JOURNAL has been constantly fearless in forewarning against possible ill effects, rather than waiting until such effects have ensued. Such has been the case with the female sex hormones. THE JOURNAL has maintained that the indiscriminate and long-continued use of female sex hormones or other potent remedies by laymen may lead to dangerous consequences; that such use of hormones in significant amounts possesses the potentiality of bringing about serious changes in the genital and reproductive organs of women; that it may induce changes in the breast and even may have a potentiality for cancer in women having a family history of cancer. If not used in significant amounts, the substance is, of course, of no value for any purpose. THE JOURNAL knows of no evidence which would cause it to change its opinion in this regard. The estrogens have a definite and, as time goes on, a more clearly defined place in modern therapeutic armamentariums—more particularly in the case of the estrogen-deficient woman. But they are not innocuous! They should not be employed except in cases in which

experience teaches that they are indicated. The layman is certainly not qualified to determine his or her own endocrine balance. Not only may there be no need for extra estrogens but an actual abundance of them may be present.

The endocrine balance of any person is a delicate adjustment; the use of potent glandular preparations to the point where they change that balance may lead to unusual and undesirable results. Obviously there is no evidence to justify the incorporation of sex hormones in preparations sold directly to the public. Those who have the best interests of the public at heart will, in our opinion, have no part in any such enterprise.

Current Comment

CASE FOR PRIVATE PRACTICE

In the issue for May of *Nation's Business* appears a special supplement entitled "The Case for Private Medicine." It is a twenty-four page story of the campaign that has been waged in recent years to force the medical profession into regimentation, and of the manner in which this campaign has been combated by the medical profession. It discusses also the state of health of the nation, and the reasons why medicine in a democracy should not be submitted to bureaucratic control. The supplement called "The Case for Private Medicine" is the fifth in a series which this magazine has been making available, the previous supplements covering "Insurance," "Investment Banking," "Power and Light" and "Distribution." Reprints of the pamphlets covering "Distribution" and "The Case for Private Medicine" are available through the *Nation's Business* at 10 cents a copy or \$6 a hundred, which just about covers the cost of printing. Every physician should become familiar with this item; it may be had by writing to the *Nation's Business*, United States Chamber of Commerce Building, Washington, D. C. This periodical, which, incidentally, is the official organ of the Chamber of Commerce of the United States, itself circulates 350,000 copies to members of that organization. In presenting this article the *Nation's Business* provides first an adequate statement under the title "Give the Doctors a Hand," pointing out that it is the duty of commerce to aid medicine in resisting the march of collectivism. The article as a whole is prefaced by the statement made by Prince Otto von Bismarck, the father of social insurance, who said:

A beginning must be made with the task of reconciling the laboring classes with the State. Whoever has a pension assured to him in his old age is much more contented and easy to manage than the man who has no such prospect. Compare a servant in a private house and one attached to a Government office or to the Court; the latter, because he looks forward to a pension, will put up with a great deal more. . . .

There are also numerous illustrations and a wide variety of quotations from writings that have been published on the subject. Every one will find this the most interesting document that has yet been made available in medicine's campaign for freedom.

1. Eller, J. J., and Wolff, Shirley: Hormones and Vitamins in Cosmetics, this issue, page 1865.

ORGANIZATION SECTION

REPORTS OF OFFICERS

NOTE.—At the 1925 session of the Association, the House of Delegates suggested that all reports of officers, committees, etc., and resolutions to be brought before the House, if available, be published in advance of the session so as to permit careful consideration and discussion.—Ed.

REPORT OF THE SECRETARY

To the Members of the House of Delegates of the American Medical Association:
The following annual report of the Secretary is respectfully submitted:

MEMBERSHIP
Within the last five years the membership of the American Medical Association was increased by more than 15,000. Toward the end of the year 1939 there were slightly more than 115,000 names on the membership list. On March 1, 1940, the number of enrolled members was 115,381, representing a gain of 3,171 since the same date in 1939. Gains in membership were recorded in forty-six constituent associations between March 1, 1939, and March 1, 1940, while losses were recorded in seven. The smallest reduction in the number of members of any constituent association was one and the largest was thirty-five.

Under the provisions of the by-laws of some constituent state medical associations, members in arrears in the payment of dues January 1 are dropped from the rolls. In some other constituent associations dues must be paid on or before April 1 each year, and in a few associations an even longer period of grace is allowed. It is respectfully suggested that the keeping of membership records might be simplified and the costs of maintaining such records reduced to some extent if all component county medical societies and constituent state and territorial medical associations could adopt the plan of having the fiscal year correspond to the calendar year.

FELLOWSHIP
On March 1, 1940, the official Fellowship roster carried 71,168 names, as compared with 69,468 on the same date in 1939. Commissioned medical officers of the United States Army, the United States Navy and the United States Public Health Service were enrolled as Fellows to the number of 3,107 on March 1, 1940.

During 1939, the deaths of 789 Fellows were reported, while 1,334 Fellows resigned their Fellowship. In most instances the resignations came from physicians who have retired or who were contemplating immediate retirement.

REAPPORTIONMENT OF DELEGATES
It is required, under the provisions of section 3, chapter I of the By-Laws, that a reapportionment of delegates shall be made every third year. This was last done at the annual session held in Atlantic City in 1937 and it is therefore necessary that a reapportionment shall be effected at the New York session in 1940 for the years 1941, 1942 and 1943.

PROPOSED AMENDMENT TO THE CONSTITUTION
At the annual session held in St. Louis in 1939 the Judicial Council, through its Chairman, submitted to the House of Delegates the following proposed amendment to the Constitution:

Resolved, That the Constitution of the Association be amended by the insertion of the words "holding the title Doctor of Medicine or Bachelor of Medicine" between the words "associations" and "are" in article 8, section 1, third line.

This proposed amendment having been submitted in 1939 will, under the provisions of the Constitution, be before the House of Delegates for action at the New York session.

Organization of Constituent State Medical Associations, April 1, 1940

Organization of Constituent State Associations									
	Number of State Counties in Com-	Number of Non-State Societies	Number of Counties in State Not Organized		Number of Physicians in State 15th Ed. A.M.A. Directory	Number of Members of State Associations		Number of A.M.A. Fellows in State	
			1939	1940		1939	1940		
Alabama.....	67	67	..	..	2,072	1,559	1,591	569	
Arizona.....	14	13	1	1	562	329	369	287	
Arkansas.....	75	60	11	11	1,850	1,036	1,053	433	
California.....	53	40	10	8	11,278	6,219	6,542	4,443	
Colorado.....	63	27	..	..	1,923	1,140	1,165	750	
Connecticut.....	8	8	..	..	2,503	1,699	1,701	1,059	
Delaware.....	..	..	..	..	326	209	227	136	
Dist. of Columbia...	67	34	19	17	2,141	1,275	1,331	629	
Florida.....	150	95	46	38	2,072	1,818	1,964	705	
Georgia.....	44	10	..	..	426	849	883	702	
Idaho.....	102	82	1	1	11,042	7,606	7,873	1,515	
Illinois.....	92	97	..	..	4,051	3,136	3,237	1,447	
Indiana.....	99	70	19	18	2,117	1,512	1,525	965	
Iowa.....	105	115	4	3	2,762	1,820	1,831	760	
Kansas.....	120	41	17	17	2,200	1,446	1,531	393	
Kentucky.....	64	15	1	1	987	1,401	1,460	916	
Louisiana.....	16	23	..	..	2,821	5,189	5,288	3,094	
Maine.....	23	14	..	..	6,142	4,196	4,262	2,353	
Maryland.....	14	54	1	1	3,426	1,076	1,127	1,673	
Massachusetts.....	83	34	1	1	1,405	3,231	3,260	2,167	
Michigan.....	87	21	1	1	5,348	3,863	410	718	
Minnesota.....	82	78	11	8	620	1,080	1,161	240	
Mississippi.....	114	17	16	10	1,705	107	506	286	
Missouri.....	56	50	12	12	616	3,604	3,784	1,609	
Montana.....	93	5	..	..	5,433	254	263	11,493	
Nebraska.....	17	10	..	..	419	16,606	16,936	833	
Nevada.....	10	21	16	16	25,613	1,689	1,867	260	
New Hampshire.....	21	15	1	1	2,663	890	407	3,723	
New Jersey.....	31	61	1	24	508	6,271	6,490	789	
New Mexico.....	62	61	18	11	9,117	1,456	1,466	523	
New York.....	100	13	2	2	2,364	774	839	6,021	
North Carolina.....	53	37	2	7	1,856	9,077	9,343	337	
North Dakota.....	68	64	2	2	13,205	404	500	403	
Ohio.....	77	24	6	6	923	943	926	184	
Oklahoma.....	36	6	1	1	1,354	317	325	841	
Oregon.....	67	60	2	4	535	1,719	1,781	2,224	
Pennsylvania.....	5	37	2	1	2,917	4,246	4,422	238	
Rhode Island.....	46	12	1	24	6,795	449	466	207	
South Carolina.....	69	60	24	11	567	374	384	995	
South Dakota.....	95	125	15	4	501	1,756	1,781	911	
Tennessee.....	254	9	3	3	2,818	1,377	1,515	680	
Texas.....	29	10	4	8	2,123	1,202	1,263	1,492	
Utah.....	14	43	9	5	1,823	2,450	2,544	171	
Vermont.....	100	25	13	12	3,426	170	171	23	
Virginia.....	39	30	5	..	266	65	39	43	
Washington.....	55	52	11	11	..	410	277	284	
West Virginia.....	71	11	..	..	..	193	122	117	
Wisconsin.....	24	..	..	..	..	1,054	1,130	65	
Wyoming.....	..	..	..	..	..	3,107	353	364	
Alaska.....	..	..	..	..	..	445	..	181	
Hawaii.....	..	..	..	..	..	..	..	..
Isthmian Canal Zone	..	..	..	..	..	..	..	..
P. I. (Provinces).....	..	..	..	..	..	..	..	..
Puerto Rico.....	..	..	..	..	..	..	..	..
Foreign.....	..	..	..	..	..	..	..	..
Total.....	3,139	2,054	386	366	173,879	112,210	116,206	63,193	
Commissioned medical officers.....	..	..	..	..	..	..	..	3,157	

Commissioned medical officers.....

ANNUAL CONFERENCE OF SECRETARIES OF CONSTITUENT STATE MEDICAL ASSOCIATIONS
The regular Annual Conference of Secretaries of Constituent State Medical Associations was held in Chicago Nov. 17 and 18, 1939. The secretaries of forty-three of the forty-nine constituent associations of the United States proper attended the

conference, and one of the territorial medical associations was represented by its executive secretary. The editors of the journals of constituent state medical associations are invited each year to participate in these conferences, and thirty-four members of this group attended the 1939 conference. The number of officers and members of official bodies of state and county medical societies in attendance at the annual state secretaries' conference is increasing each year. The members of this group participate in the conference discussions.

Topics for discussion before the conference are, for the most part, suggested by the secretaries and editors of the constituent associations, and thus opportunity is given through these annual conferences for frank and helpful consideration of matters of immediate and important interest to the secretaries, editors and other officers of component county medical societies and constituent state medical associations and of equal interest and importance to the members of the official and administrative personnel of the American Medical Association.

GREATER INTEREST AND EFFICIENCY IN STATES AND COUNTIES

There can be no doubt in the mind of any one who has had opportunity for observation that there has been a most remarkable growth of interest in the affairs of component county medical societies and of constituent state medical associations within the last few years. This growing interest on the part of the profession is clearly shown by the growth of membership in county and state societies and in some independent organizations; by the greater attendance of physicians at meetings where scientific programs are presented or where subjects of a medicosocial order are discussed; by the more careful and extensive reading of medical periodicals; by the more constantly growing attention to the work and accomplishments of official bodies; by suggestions and criticism on the part of physicians, and, finally, by the ever growing stream of correspondence that pours, day after day, into the offices of county and state society officials and into the offices of every department of the American Medical Association. The fact that from 165 to 170 of the 174 members of this House of Delegates have been in attendance during the last several sessions bears eloquent testimony to the interest of the profession throughout the land in the work of this Association and to the earnest willingness and desire of these delegates to serve the cause of medicine efficiently and in a manner that will accord with the highest professional traditions.

The interest of the public in medicine and its practice and in the work of the official agencies of the profession has grown tremendously. That this is true is clearly shown by the constantly increasing demands made on the officers of medical organizations to provide speakers to address public audiences, by the constantly increasing size of such audiences, by the ever increasing discussion of medical subjects and medical affairs in the public press, by the willingness of the great broadcasting companies and of individual radio stations to make their facilities available for the public discussion of medical subjects, by the fact that teachers in the schools from the kindergarten to the university are studying and encouraging pupils to study hygiene and to apply the established principles of disease prevention, and by the further fact that tens of thousands of inquiries from individual laymen are received each year in the offices of the American Medical Association and thousands more in the offices of county and state societies.

A constantly increasing number of the component and constituent societies of this Association are striving to discharge as fully as possible the responsibilities that rest on them because of the growing interest of their own members and of the public in medical subjects and affairs. The tendency toward the employment of full time personnel is increasing. The official bodies and special committees of our societies are giving more and more of their time and effort for the promotion of the art and science of medicine and the betterment of the public health, which means that organized medicine in this country is earnestly trying to serve the public interest. The example set by our most active and efficient societies is having great effect in stimulating the more static organizations, and we may confidently look forward to the time in the not too distant future when there will be no static societies in any jurisdiction where genuine efficiency is possible of attainment.

AMENDMENT AND REVISION OF CONSTITUTIONS AND BY-LAWS

A very considerable number of component county medical societies and constituent state medical associations have initiated intensive effort to secure amendment or revision of their organic laws. These efforts are to be commended, since it has become quite apparent that in many instances there is real need for constructive revision. However, it would seem highly desirable that there should be concerted effort toward the utmost possible uniformity in the constitutions and by-laws of all component and constituent societies. There are some major differences between the constitutions and by-laws of many component county medical societies and those of a number of constituent state medical associations. Conflicts between the provisions of the constitutions and by-laws of component societies and the provisions of these instruments of the constituent associations from which such societies receive their charters have been discovered. It is highly important, in the interest of efficient county, state and national organization, that all such conflicts should be removed. Wide diversities are noted in membership classifications that have been established by component and constituent societies. These are matters of importance not only from the standpoint of desirable efficiency in organization but also from the standpoint of purely legal considerations.

FIELD WORK

The President and the President-Elect of the Association have attended meetings of state associations in all parts of the country during the year, as have those who have served before them in each previous year. They have also attended a large number of special meetings and conferences. Members of official bodies of the Association and, in some instances, Fellows of the Association who hold no official positions have represented the Association before medical and public audiences. Members of the administrative personnel have traveled many thousands of miles and have appeared before professional and lay groups in nearly every state. These appearances have been made on the invitations of state, county or district societies or on invitations endorsed by these societies. These representatives of the Association have carried its message to elementary schools, colleges and universities, to the members of many professional and lay groups, and to general public audiences from the platform and over the radio. They have participated in important conferences with official representatives of medical societies and of civic organizations and with public officials including members of legislative bodies. It is a matter for regret that it is not possible to comply with all requests that the Association be officially represented at meetings of medical societies or provide speakers for lay audiences.

RESOLUTION FOR SUBMISSION TO HOUSE OF DELEGATES

The following resolution has been placed in the hands of the Secretary by Dr. A. A. Herold, delegate from the Louisiana State Medical Society, with notice of his intention to submit it to the House of Delegates at the New York session:

WHEREAS, The federal government saw fit, in an amendment to the Harrison Narcotic Act, to prohibit the importation and manufacture of heroin in this country; and

WHEREAS, Said prohibition has been in effect for a sufficiently long time to show that it does not prohibit the drug addicts from obtaining heroin by illegal means but does prohibit the medical profession from being able to utilize this valuable remedy in the treatment of diseases; and,

WHEREAS, As a result of said proscription, various proprietary medicinal houses have reaped a harvest from the sale of patented high priced narcotics, which they report to the medical profession as substitutes for heroin; therefore be it

Resolved, By the House of Delegates of the American Medical Association that, through our legislative committee, we petition Congress to rescind this amendment to the Harrison Narcotic Act, thereby permitting the medical profession to enjoy the benefits of this very useful opium derivative.

IN APPRECIATION

To all of those in official positions and among the general membership of the Association who have offered encouragement, counsel, criticism and aid of many kinds on many occasions, the Secretary extends an expression of his gratitude.

Respectfully submitted.

OLIN WEST, Secretary.

REPORTS OF OFFICERS

REPORT OF THE BOARD OF TRUSTEES

To the Members of the House of Delegates of the American Medical Association:

The Board of Trustees respectfully submits to the House of Delegates of the American Medical Association at its Ninety-First Annual Session the following report pertaining to the official activities of the Association as carried on through various councils, bureaus and departments. Reports of those councils which are standing committees of the House of Delegates will be submitted separately by their respective officers.

At regular and special meetings of the Board of Trustees that have been held during the period covered by this report an unusually large volume of business has been transacted, involving the consideration of a remarkably diversified list of items pertaining to the constantly growing work of the Association. Each year there are four stated meetings of the Board of Trustees, and meetings of the Executive Committee of the Board are held each month except in the month immediately succeeding that in which a stated meeting of the Board of Trustees is held. In 1939 it was necessary to have special meetings of the Board of Trustees as well as extra meetings of the Executive Committee in order that the business affairs of the Association might receive proper official attention. The Board of Trustees holds meetings each day during the first four days of each annual session. All meetings of the Board of Trustees are attended by the President, the President-Elect and the Treasurer of the Association and by the Speaker of the House of Delegates except in those instances in which it is not possible for one or more of these officers to attend. Meetings of the Board that have been held since the St. Louis session have been attended by the Vice President of the Association.

Income and Expenditures

As a result of a detailed survey made by a leading organization of auditors, some changes have been made in the system of accounting heretofore used by the Association, which have contributed to simplification and clarification of some of the accounts on the Association's books and which will make it possible for the Board of Trustees to submit financial reports of each year's operation that will more clearly show the nature of financial transactions involved in conducting the business affairs of the Association. Because of these innovations it will not be possible to make simple comparisons between a few items pertaining to income and expenditures in the year 1939 and the same general items in the financial statement submitted to the House of Delegates covering the year 1938. Most of the changes made in accounting methods will enable the Accounting Department to distribute more accurately certain operating costs, largely costs involving overhead expense, among the various councils, bureaus and departments of the Association. All of these changes are in keeping with the best accounting practices.

Gross income from all sources for the year ended Dec. 31, 1939, amounted to \$1,798,766.82.

Income received from Fellowship dues and subscriptions in 1939 was \$751,882.02, which exceeded income from the same source in 1938 by the sum of \$96,006.11. This gain was due almost entirely to the fact that the increase of \$1 a year in the subscription price of THE JOURNAL went into effect on Jan. 1, 1939, and, to some small extent, to an increase in the number of Fellows.

Income from the sale of advertising space in 1939 amounted to \$908,790.58, representing an increase of \$33,423.15 over the preceding year.

Interest received on investments in 1939 amounted to \$84,938.91, approximately \$2,000 less than income from the same source in 1938. During the year several issues of bonds held by the Association matured or were called for payment. Other bonds will mature during the current year. Bonds held in the Association's portfolio with face value of \$48,400 have defaulted in the payment of interest to the accumulated amount of \$3,760.10. The tendency toward the maintenance of low interest rates has continued during the year covered by this report. The cost of paper used in the publication of THE JOURNAL in 1939 was \$229,362.75, compared to expenditures on the same account in 1938 of \$252,254.14. This difference in expenditures for the two years is explained by the fact that more favorable

prices for paper obtained in 1939. The cost of paper in connection with publications other than THE JOURNAL are charged against those publications.

Expenditures incident to the operations of the various bureaus, councils and departments of the Association in 1939 were \$484,052.06, as compared with \$458,499.27 in the previous year. The larger expenditures in 1939 were due to the cost of installation and maintenance of the Association's exhibits at the New York World's Fair and the Golden Gate International Exposition in San Francisco and to increased activities on the part of all the councils, bureaus and departments of the Association. Miscellaneous expenses including fees for legal services and investigations and the losses involved in the publication of the QUARTERLY CUMULATIVE INDEX MEDICUS, of special journals and of HYGEIA amounted to \$205,885.02.

Expenditures for legal services and investigations were much larger than in 1938 because of the indictment brought against the Association by the Department of Justice and because certain suits were brought to trial and disposed of finally and favorably.

The net cost of publication of the QUARTERLY CUMULATIVE INDEX MEDICUS, of seven of the special journals published by the Association and of HYGEIA exceeded income received by the sum of \$75,947.00, about one half of which amount was represented by the cost of publication of the QUARTERLY CUMULATIVE INDEX MEDICUS. Losses on HYGEIA, on the ARCHIVES OF SURGERY, on the ARCHIVES OF PATHOLOGY, on the ARCHIVES OF NEUROLOGY AND PSYCHIATRY and on the QUARTERLY CUMULATIVE INDEX MEDICUS were considerably smaller in 1939 than in 1938, while the losses sustained through the publication of the ARCHIVES OF INTERNAL MEDICINE, of the AMERICAN JOURNAL OF DISEASES OF CHILDREN, of the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY and of the ARCHIVES OF OTOLARYNGOLOGY AND OPHTHALMOLOGY produced income larger than the cost of publication.

The Association's buildings and the equipment therein have been well maintained. During the year a new gathering machine was installed in the bindery, and a considerable amount of office furniture and equipment was purchased.

At the time of the preparation of this report 620 persons were employed by the Association. It is expected that increased expenditures for wages and salaries will be required during the current year.

The net gain as shown by the report of the Auditor for the year 1939 was \$114,798.77, of which amount \$84,938.91 was interest on investments.

The Report of the Treasurer and the Report of the Auditor are submitted as a part of the official report of the Board of Trustees.

Summary

Gross income from all sources for the year 1939 amounted to \$1,798,766.82. Income received from Fellowship dues and subscriptions was \$751,882.02, exceeding income from the same source in 1938 by the sum of \$96,006.11. Income from the sale of advertising space amounted to \$908,790.58, an increase over 1938 of \$33,423.15. Interest received on investments amounted to \$84,938.91, approximately \$2,000 less than in 1938. Some bonds held by the Association matured or were called for payment during the year, and others will mature in 1940. Bonds with face value of \$48,400 have defaulted in the payment of interest to the accumulated amount of \$3,760.10. The cost of paper used in connection with the publication of THE JOURNAL was approximately \$23,000 less than in the preceding year because of the more favorable prices which obtained in 1939. Expenditures on account of the various councils, bureaus and departments of the Association were \$484,052.06, as compared with \$458,499.27 in 1938. Miscellaneous expenses including fees for legal services and investigations and losses involved in sundry publications amounted to \$205,885.02. The number of persons employed by the Association at the time of the preparation of this report was 620. Net gain for the year as shown by the Report of the Auditor was \$114,798.77, of which amount \$84,938.91 represented interest on investments.

The Journal of the American Medical Association

The influence of THE JOURNAL, already significant previous to 1939, was greatly enhanced during the year by its conspicuous leadership not only in scientific advancement but also in relation to social and economic problems. The ability to place promptly before the medical profession the activities of the House of Delegates and of the Board of Trustees was of vital importance in securing complete medical support for official policies. Especially important was the publication of a platform defining the point of view of the American Medical Association with regard to the extension of medical service. This met with prompt acceptance by constituent state and component county medical societies and is now being widely promulgated to the medical profession.

TABLE 1.—Approximate Count of Fellows and Subscribers on The Journal Mailing List, by States, Jan. 1, 1940;
Also Gain or Loss in Each State

State	Fellows	Subscribers	Totals	Gain	Loss
Alabama.....	525	233	758	..	4
Arizona.....	241	124	365	..	..
Arkansas.....	407	193	602	..	25
California.....	4,136	2,507	6,643	..	71
Colorado.....	646	276	922	..	..
Connecticut.....	1,002	649	1,651	5	..
Delaware.....	123	84	207	3	..
District of Columbia.....	627	597	1,224	30	..
Florida.....	748	414	1,162	100	..
Georgia.....	656	401	1,057	22	..
Idaho.....	141	96	237	..	26
Illinois.....	4,467	2,772	7,239	21	..
Indiana.....	1,637	696	2,333	73	..
Iowa.....	1,269	457	1,726	63	..
Kansas.....	846	260	1,106	..	50
Kentucky.....	766	339	1,105	18	..
Louisiana.....	655	372	1,027	39	..
Maine.....	368	155	523	..	7
Maryland.....	667	693	1,360	39	..
Massachusetts.....	2,649	1,494	4,143	..	189
Michigan.....	2,219	1,234	3,453	..	..
Minnesota.....	1,363	656	2,019	31	..
Mississippi.....	290	162	452	10	..
Missouri.....	1,950	777	2,727	128	..
Montana.....	193	108	301	1	..
Nebraska.....	621	251	872	..	17
Nevada.....	62	38	100	3	..
New Hampshire.....	280	90	376	8	..
New Jersey.....	2,309	1,549	3,858	..	17
New Mexico.....	169	88	247	7	..
New York.....	9,809	5,484	15,293	..	122
North Carolina.....	775	504	1,279	..	8
North Dakota.....	215	84	299	3	..
Ohio.....	3,432	1,546	4,978	..	42
Oklahoma.....	679	273	952	..	44
Oregon.....	470	293	763	..	2
Pennsylvania.....	5,512	2,475	7,987	..	240
Rhode Island.....	326	191	517	..	16
South Carolina.....	354	222	576	..	12
South Dakota.....	181	107	288	..	7
Tennessee.....	762	398	1,160	..	20
Texas.....	1,912	863	2,775	26	..
Utah.....	226	84	310	..	14
Vermont.....	203	81	284	..	5
Virginia.....	941	416	1,357	..	15
Washington.....	817	388	1,205	47	..
West Virginia.....	610	276	886	..	19
Wisconsin.....	1,341	643	1,984	..	16
Wyoming.....	105	50	155	..	2
U. S. Army.....	..	174	174	1	..
U. S. Navy.....	..	255	255	3	..
U. S. P. H. S.....	..	87	87	..	9
Alaska.....	19	27	46	2	..
Canada.....	15	786	801	..	23
Cuba.....	3	116	119	13	..
Hawaii.....	102	90	192	13	..
Mexico.....	8	112	120	26	..
Philippines.....	19	43	62	10	..
Porto Rico.....	40	215	255	..	19
Samoa.....	63	57	120	..	4
Virgin Islands.....	..	5	5	..	2
Foreign.....	106	3,065	3,171	93	..
Advertisers and agents.....	..	..	505	6	..
Exchanges.....	..	..	323	3	..
Complimentaries.....	..	..	135	17	..
Total on mailing list.....			92,609	869	1,054

Week after week the articles and editorials featured in THE JOURNAL appear in reprinted form in newspapers and other periodicals, a procedure which is constantly increasing, aided, of course, by the weekly dissemination of the AMERICAN MEDICAL ASSOCIATION NEWS.

The multiplication of councils and bureaus of the Association and the enhanced work, particularly of the Council on Medical

Education and Hospitals, have led to the publication of a considerable number of special issues each year. This constitutes a difficult problem in the field of publication. Special issues now include numbers devoted to the state boards, medical education, institutions for the tuberculous, hospitals, industrial health

TABLE 2.—Percentage of Physicians Receiving The Journal*

State	Number Receiving Journal	Physicians in A. M. A. Directory	Approximate Percentage Receiving the Journal
Alabama.....	758	2,072	37
Arizona.....	365	502	65
Arkansas.....	602	1,850	33
California.....	6,643	11,278	59
Colorado.....	922	1,023	48
Connecticut.....	1,651	2,503	66
Delaware.....	207	336	63
District of Columbia.....	1,224	2,141	57
Florida.....	1,162	2,072	66
Georgia.....	1,057	2,756	38
Idaho.....	237	426	56
Illinois.....	7,239	11,012	61
Indiana.....	2,333	4,081	57
Iowa.....	1,726	3,100	56
Kansas.....	1,106	2,117	52
Kentucky.....	1,105	2,762	40
Louisiana.....	1,037	2,200	48
Maine.....	523	987	53
Maryland.....	1,560	2,821	55
Massachusetts.....	4,343	7,528	58
Michigan.....	3,453	6,142	56
Minnesota.....	2,025	3,426	59
Mississippi.....	442	1,495	30
Missouri.....	2,757	5,348	52
Montana.....	301	520	58
Nebraska.....	872	1,705	51
Nevada.....	100	148	68
New Hampshire.....	376	616	61
New Jersey.....	3,858	5,433	71
New Mexico.....	247	419	59
New York.....	15,293	25,613	60
North Carolina.....	1,270	2,663	48
North Dakota.....	299	508	59
Ohio.....	4,978	9,117	55
Oklahoma.....	952	2,364	40
Oregon.....	763	1,836	55
Pennsylvania.....	7,987	13,205	60
Rhode Island.....	517	693	55
South Carolina.....	576	1,354	43
South Dakota.....	288	535	54
Tennessee.....	1,160	2,017	49
Texas.....	2,775	6,795	41
Utah.....	310	567	55
Vermont.....	281	501	57
Virginia.....	1,357	2,818	49
Washington.....	1,205	2,123	57
West Virginia.....	886	1,823	49
Wisconsin.....	1,984	3,436	58
Wyoming.....	155	266	59

* This table gives the number of physicians (based on the Fifteenth Edition of the American Medical Directory) in the United States, the number receiving THE JOURNAL and the approximate percentage in each state. Copies to physicians in the United States Army, Navy and Public Health Service are not included.

and the annual session, and there are also feature issues containing special reports like those of the Annual Congress on Medical Education and Licensure, the Conference on Patents and the Annual Conference of Secretaries of Constituent State Medical Associations as well as the special reports on typhoid, diphtheria and Fourth of July injuries. No other medical publication in the world attempts any such comprehensive series of investigations and publications.

The present war in Europe has led to some difficulties in maintaining the foreign correspondence of THE JOURNAL, but by special arrangements material continues to be received from most of the world. During the year new foreign correspondents were added from Sweden, Denmark and Argentina.

Attention should be called again to the extraordinary service rendered by the department of Queries and Minor Notes. This feature of THE JOURNAL is maintained at considerable cost but is now generally recognized to be one of the most valuable services that can be rendered to the medical profession.

During 1939 THE JOURNAL published a Student Section each month excepting June, July and August. The Student Section has included original signed articles, comments and reviews of selected articles published in various journals in this country and in Europe, letters to the Editor and several pages each month of especially selected news items. In response to letters written to the deans of medical colleges in the United States, certain

9. An appended table indicates the number of Fellows and subscribers on the mailing list of THE JOURNAL in each state or territory on Jan. 1, 1940, together with the number of fellows and subscribers in other countries, the number of copies of THE JOURNAL sent to advertisers and subscription agents and the number sent as exchange or complimentary copies. A second appended table indicates the number and approximate percentage of physicians in each state who receive THE JOURNAL.

Summary

An increasing number of articles and editorials which have appeared in The Journal are now being reproduced in part, or are the subject of comment, in newspapers and other periodicals throughout the country. The American Medical Association News, issued each week, contains abstracts of material appearing in The Journal. Special issues of The Journal now include numbers devoted to medical education and the work of the Council on Medical Education and Hospitals, industrial health, institutions for the treatment of tuberculosis, the annual session of the American Medical Association and hospital registration and administration. Special reports pertaining to the Annual Congress on Medical Education and Licensure, the Annual Conference of Secretaries of Constituent State Medical Associations and typhoid, diphtheria and Fourth of July injuries are featured in other issues of The Journal.

The Department of Queries and Minor Notes continues its feature of The Journal. A Student Body of Queries and Minor Notes is being organized with the object of securing answers to questions of a general nature.

to be an important feature of the Journal. A Student Section was published each month except during June, July and August and has attracted much favorable attention. Three additional foreign correspondents were added to the Journal staff during the past year. The total circulation of the Journal as of Jan. 1, 1940, was 99,669.

Work in Press Relations

A continued acceptance by newspapers and other lay publications of the American Medical Association as an unbiased and dependable source of information on the current medical scene is evidenced by the wide acceptance and use of the AMERICAN MEDICAL ASSOCIATION NEWS, which was inaugurated in November 1938. This publication contains abstracts of material appearing in the various publications of the Association and is published each Thursday. Its mailing list includes 347 daily newspapers, fifty-eight news services, radio stations and miscellaneous news organizations, thirty-two health departments, forty-three health and tuberculosis associations, sixty-nine county and local medical societies, fifty-four constituent state and territorial medical associations, eighty-one national medical organizations, fifty-seven pharmaceutical companies and associations, forty-three industrial organizations and fifteen educational institutions. The names of the publications and organizations receiving the AMERICAN MEDICAL ASSOCIATION NEWS have been placed on the mailing list on request. There is no charge for the publication. Some conception of the acceptance of the AMERICAN MEDICAL ASSOCIATION NEWS by the American press is indicated by the fact that each week from one to four stories based on its contents are sent out from Chicago by the Associated Press, the United Press, the International News Service and the Transradio Press to the 1,088 daily newspapers and a large number of radio stations in the United States. Material appearing in the AMERICAN MEDICAL ASSOCIATION NEWS is carefully correlated with the weekly radio broadcast "Medicine in the News," prepared by the Bureau of Health Education.

During the year approximately 1,400 inquiries involving all matters were received from newspapers. These inquiries were received at the headquarters office. A file of medical news items is maintained at the headquarters office.

During the year approximately 1,400 inquiries involving all phases of medicine were received from newspapers. These ranged from interviews by reporters at the headquarters office to telegrams and long distance telephone calls. A file of medical stories appearing in newspapers is kept in this department for reference purposes in answering inquiries.

The department has prepared many of the articles for and has otherwise aided in the preparation of fifteen medical supplements sponsored during the past year by constituent state or component county medical societies in local newspapers. The press arrangements for the annual sessions of the American Medical Association, under the supervision of the Editor, have become so efficient that they are used as an example of the volume of 316,000.

The department has otherwise aided in the past year by supplementing sponsored during the annual sessions of the American Medical Association, under the supervision of the Editor of THE JOURNAL, have become so efficient that they are used as models by other organizations. As an example of the volume of newspaper coverage of the annual sessions, a total of 316,186 words were either published in the St. Louis daily newspapers or telegraphed by wire services or special staff writers to other papers in the country during the five days of the St. Louis session in May 1939.

Special Journals

Special Journals

From the scientific, editorial and mechanical points of view the quality of the eight special journals published by the American Medical Association is equal, if not superior, to that of any similar periodicals published in the world. The popularity of these journals as sources of publication of high grade scientific material continues. The number of pages in all but two of the journals in 1939 exceeded the number published in 1938. Although the number of subscribers has increased, the loss on the publication of the special journals in 1939 was slightly in excess of the loss the preceding year. An effort was made to reduce the loss by discontinuing the furnishing of complimentary reprints from these journals in accordance with the action taken by the Board of Trustees. This policy was applicable on articles the proofs of which were sent out after August 1. However, many of the articles the proofs of which went out prior to August 1 were not published until after that date, and the policy was therefore effective only for a few months in 1939. Only one of the periodicals, the ARCHIVES OF OPHTHALMOLOGY, was produced without loss. Specialists in these fields should lend their wholehearted support to these periodicals, which are published for the promotion of scientific knowledge in special fields and for the idea of commercial gain.

The reviews of the literature published in the ARCHIVES of INTERNAL MEDICINE continue to attract much attention and probably are responsible for at least a part of the gain in the subscription list of that periodical, which was approximately 100 in 1939.

Symposiums on industrial dermatoses read at the 1938 meeting of the American Medical Association and of the American Dermatological Association were published in the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY and have been reprinted in pamphlet form in response to a demand on the part of dermatologists.

From time to time requests have been received for cumulated indexes of some of the special journals. To ascertain what the demand for these cumulated indexes would be, notices were published in several issues of four of the journals to the effect that ten or twenty year cumulated indexes would be published if the demand was sufficient to justify it. The interest exhibited thus far, however, has been too small to warrant the Association in undertaking the publication of any of these indexes.

published in several issues. The number of manuscripts published in ten or twenty year cumulative indexes of the demand was sufficient to justify it. The number of manuscripts published in ten or twenty year cumulative indexes of the demand was sufficient to justify it. The number of manuscripts published in ten or twenty year cumulative indexes of the demand was sufficient to justify it.

board of the ARCHIVES OF SURGERY. In April 1939 death claimed one of the esteemed members of the editorial board of the ARCHIVES OF PATHOLOGY, Dr. Alfred Stengel.

Dr. Waltman Walters was elected chairman of the editorial board of the ARCHIVES OF SURGERY early in the year, owing to the illness of Dr. Dean Lewis, Editor in Chief of the publication since its establishment in 1920. Dr. Walters and his co-workers have worked assiduously to maintain the high standard of the periodical, set by Dr. Lewis, and to initiate improvements which will appeal to its readers.

Arrangements have been made for an exhibit of the special journals in the Scientific Exhibit at the New York session of the Association.

The cost of production of all the special journals in 1939 exceeded income by the sum of \$29,125.49, slightly more than the loss incurred in the preceding year.

It is gratifying to the Board of Trustees to report to the House of Delegates that each of the eight special journals published by the Association showed increases in circulation in 1939, varying from thirty for the ARCHIVES OF OTOLARYNGOLOGY to 391 for the ARCHIVES OF INTERNAL MEDICINE.

Summary

The number of pages in each of the special journals, with two exceptions, was greater in 1939 than in the preceding year. The circulation of all these journals in 1939 was greater than in 1938. The cost of production of the special journals as a whole was slightly larger in 1939 than in the previous year, the total loss amounting to \$29,125.49. Only one of this group of journals was published without loss. The policy of providing complimentary reprints of articles appearing in the special journals has been discontinued. Reviews of literature published in the Archives of Internal Medicine have attracted much favorable attention. In compliance with persistent demand, symposiums on industrial dermatoses published in the Archives of Dermatology and Syphilology have been reprinted in pamphlet form. Requests having been received for cumulative indexes for some of the special journals, an effort to ascertain what the demand would be failed to show that it would justify the publication of such indexes.

Library

The functions of the Library of the American Medical Association include the maintenance of the package library service and of the periodical lending service, the indexing of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and of some of the other periodicals and books published by the Association, the answering of questions on medical bibliographic subjects, the maintenance of an employees' library and the provision of reference material to workers in the headquarters offices.

During 1939, 2,993 package libraries were distributed, going to every state, the District of Columbia and Canada. The subjects most frequently requested concerned sulfanilamide, tuberculosis, arthritis, pneumonia, undulant fever, anesthesia, diabetes, cancer and the vitamins. Notwithstanding the fact that the United States government maintains innumerable libraries and similar services, material from the package library service of the American Medical Association was supplied on request to ninety-one government hospitals and agencies. Letters coming from physicians who have benefited from this service indicate a vast appreciation. This service is supplied at a fee far below its actual cost to the Association and is intended primarily as a means of advancing medical science and of giving to practitioners who are far removed from available libraries a good reference service.

Periodicals were sent on loan by the Library to many physicians. The number sent during 1939 was 12,714, the requests coming again from every state in the Union, the District of Columbia and Canada. Bibliographic aid was given in response to 6,000 requests received by letter and telephone. During the year, 1,545 visitors to the Library personally requested service.

The Association finds it impossible to maintain a permanent periodical or book library of large proportions. Therefore,

periodicals no longer called for because of age are distributed to libraries that maintain permanent collections. During the year periodicals for 1926 and 1927 were discarded from the files of the Library and were distributed to sixty-four other medical libraries, of which thirteen were libraries of county medical societies.

The employees' library makes books available to employees of the Association, who pay an annual fee of 50 cents to aid this service. The circulation of books during the year was 4,973, and the employee subscribers numbered 114. The magazine circulation totaled 1,258 for the last six months of 1939. Twenty-two popular magazines are now circulated through the employees' library.

The circulation of the QUARTERLY CUMULATIVE INDEX MEDICUS in 1939 increased by 181 subscribers. The income from subscriptions and sales for the year was \$35,428.34, an increase of about \$5,460 over 1938. The production of a greater number of copies, however, brought the printing costs to a new high figure of \$42,160.02. The net loss on the publication of the INDEX for 1939 was \$39,151.66, the lowest figure for many years.

One hundred and eighteen periodicals were added to the number of journals indexed in the QUARTERLY CUMULATIVE INDEX MEDICUS and twenty-seven periodicals were dropped from the list, making a net gain of ninety-one in the number of periodicals indexed in 1939.

It is too early, perhaps, to estimate what effect the war will have on periodicals published in foreign countries. It is obvious at this time, however, that the size of many of the foreign periodicals is being cut considerably. The wars in Europe have not seriously interfered with the transmission of foreign periodicals except those published in France.

Summary

Through the package library service and the periodical lending service 2,993 library packages were distributed and copies of 12,714 periodicals were lent in 1939. Bibliographic aid was given in response to 6,000 requests, and the facilities of the Library were utilized by 1,545 visitors during the year. The circulation of books and magazines during the year among the Association's employees through the employees' library totaled more than 6,000.

The Quarterly Cumulative Index Medicus, prepared for publication in the Association's Library under the supervision of the Editorial Department, showed a slightly increased circulation in 1939. One hundred and eighteen periodicals were added to the number of journals indexed, while twenty-seven were dropped. The cost of production of the Quarterly Cumulative Index Medicus over income received was \$39,151.66, as compared with \$43,034.71 in 1938.

Hygeia

The continuous improvement in HYGEIA, particularly in illustration and display as well as in the nature of the material published, has attracted wide attention among publishers and educators. HYGEIA continues to be the most widely quoted and reprinted publication in the field of health. Special attention should be called to a new series of articles devoted to the nine leading causes of death and to the many articles which have been regularly reprinted in the *Reader's Digest* and have had, thereby, a tremendous additional circulation. One such article, entitled "It Was Only a Scratch," was so widely reprinted after first publication in HYGEIA that its total circulation has by this time reached more than ten million copies.

The restrictions on acceptable advertising necessary in order to make HYGEIA accord completely with the policies of the American Medical Association make it exceedingly difficult to secure for this periodical enough general advertising to make it fully self supporting. Were it to have the freedom of advertising copy available to most of the popular publications, HYGEIA could be made to yield a large profit to the Association. Fortunately, however, there seems to be a tendency toward an increase in advertising matter, particularly now that the government has begun to place more definite restrictions on gen-

REPORTS OF OFFICERS

eral advertising in accordance with the Wheeler-Lea Amendment and the work of the Federal Trade Commission. There is every reason to believe that the publication of *HYGEIA* will be greatly stabilized within the next few years. Even at present the loss on the publication is not significant in relation to the vast amount of good that it accomplishes and the service that it renders.

The net paid circulation of *HYGEIA* for the year 1939 showed an increase of 7,588. Advertising income was approximately \$2,000 less than in the preceding year. The total income from subscriptions and the sale of advertising space was less by the sum of \$7,669.85 than the costs of publication.

A total of 15,949 physicians were subscribers to *HYGEIA* in 1939, while the total circulation of the magazine was in excess of 110,000.

Summary

There has been continuous improvement in *Hygeia* with respect to the nature of material published as well as to the mechanical features of the magazine, and it is perhaps the most widely quoted publication of its kind. A new series of articles is devoted to nine leading causes of death. Many of the articles published in *Hygeia* have been regularly reprinted in the *Reader's Digest*, and one article was so widely reprinted that its total circulation has approximated ten million copies.

Income from the sale of advertising space in *Hygeia* was approximately \$2,000 less than in 1938. Net paid circulation in 1939 showed an increase of 7,588. The total income was less than the cost of production by the sum of \$7,669.85.

Standard Classified Nomenclature of Disease and National Conference on Medical Nomenclature

The revision of the Standard Classified Nomenclature of Disease has been rapidly pushed forward with the advice and help of a large number of consultants. It is anticipated that the new edition will be completed in 1940.

A National Conference on Medical Nomenclature Association at the headquarters office of the American Medical Association on March 1, 1940, attended by representatives of special societies, hospital organizations, government services and other interested groups. It was clearly brought out at the conference that advances in medicine necessitate reexamination of the methods of classifying disease at relatively frequent intervals. The conference, therefore, recommended that it or a similar body meet at periods of approximately five years and that revisions of the Standard Nomenclature of Disease occur at similar intervals. It was suggested that in the interim an editorial advisory board be appointed to concern itself with problems which may require more constant supervision. The conference approved the preparation of a standard nomenclature of operations.

Many problems of disease classification were discussed at the conference and it was brought out that the formal classification of disease involves educational factors, the facilitation of clinical research, the organization of hospital record libraries, comparative morbidity statistics and morbidity reports and the relation of morbidity to the International List of Causes of Death. It was clearly demonstrated by several papers given at the conference that the Standard Classified Nomenclature of Disease lends itself to many aspects of clinical research and that it may also serve as the basis for the preparation of large scale morbidity reports by adaptation to punch cards and tabulating methods.

Book Publication

Significant among the book publications of the American Medical Association in 1939 were the first editions of the books *Accepted Foods*, *The Pharmacopeia and the Physician*, *The Vitamins and a series of Selected Questions and Answers taken from the Queries and Minor Notes Department of THE JOURNAL*. The advance orders and the prompt response of the profession to these books indicate that the Association meets a demand in making available such contributions. It is not, however, the plan of the Association to enter the field of book publication except as far as concerns reprinting of material from the columns of the periodicals which it publishes.

American Medical Directory

The Sixteenth Edition of the American Medical Directory is now in process of preparation for publication, and it is expected that this new edition will come off the press about the middle of the current year.

Cooperative Medical Advertising Bureau

The Cooperative Medical Advertising Bureau is operated for the benefit of official organs of constituent state medical associations. Thirty-four state medical journals were represented by the Bureau in 1939. The *New York State Journal of Medicine* became a cooperative member of the Bureau in 1939 but has recently discontinued its membership. The *North Carolina Medical Journal*, an entirely new publication, made its appearance in January 1940 and is included in the list of state journals served by this Bureau.

The total amount of business secured through the Cooperative Medical Advertising Bureau in 1939 was \$202,868.23. Commissions earned amounted to \$40,459.49, of which sum \$22,750 was distributed among the cooperating state journals at the end of the year. The amount of commissions so distributed to the cooperating journals in 1939 were \$17,500. The operating costs of this Bureau in 1939 were \$15,572.49.

Mailing and Order Department

The Mailing Department in 1939 handled 1,608,747 pieces of first and third class mail. This does not include the mailing of publications of the Association to subscribers. In the Order Department, 72,265 separate orders were handled during the year covered by this report, involving the distribution of more than 520,000 units and the handling of more than 3½ tons of mail.

Indictment of the Association and Others at the Instigation of the Department of Justice

As has been previously reported to the House of Delegates by the Board of Trustees, an indictment against the American Medical Association and others was secured by the United States Department of Justice at the hands of a special grand jury in the District of Columbia.

On Dec. 20, 1938, a presentment and indictment in the name of the government of the United States against the American Medical Association and others was filed in the United States District Court for the District of Columbia. On Feb. 28, 1939, general and special demurrers of the defendants to this indictment were filed in the same court. On July 26, 1939, by the order of Justice Proctor, of the United States District Court for the District of Columbia, defendants' demurrers to the indictment were sustained and the indictment dismissed. On July 31, 1939, the government, through its Department of Justice, appealed to the United States Court of Appeals for the District of Columbia and that court issued a citation to the appellant On Sept. 9, 1939, a certified copy of the record for the District of Columbia. About Sept. 15, 1939, the government, by filing its petition in the Supreme Court of the United States praying for a writ of certiorari directed to the Court of Appeals, requested the Supreme Court of the United States to remove the case from the Court of Appeals to the Supreme Court before Oct. 23, 1939, the United States Supreme Court denied the petition of the government for the writ of certiorari. On Dec. 14, 1939, the printed brief and argument for the defendants was filed in the United States Court of Appeals for the District of Columbia. On Jan. 2, 1940, the government submitted a motion for a hearing before all of the justices of the Court of Appeals, which was denied. On Jan. 12, 1940, argument was presented by counsel for the government and by counsel for the American Medical Association and others named in the indictment. On March 4, 1940, the United States Court of Appeals for the District of Columbia rendered a decision reversing the decision of the District Court. The decision of the appellate court was printed in full in THE JOURNAL March 16, 1940.

In accordance with instructions given by the House of Delegates to the Board of Trustees, it is the purpose of the Board to exhaust all possible effort to defend the American Medical Association against the indictment and to secure complete acquittal under the charges accusing the American Medical Association and others of conspiracy and of violation of the federal antitrust laws.

Conferences with Official Representatives of Other Organizations

During the year, the Board of Trustees has extended invitations to official representatives of organized medical and hospital groups to attend conferences for the purpose of discussing matters of important mutual interest. All of these invitations, with one exception because it was not possible to find a convenient time for the conference, were cordially accepted.

Conferences have been held with representatives of the three national hospital associations, the American College of Physicians, the American College of Surgeons, the American Society of Clinical Pathologists and the American Dental Association, at some of which representatives of the Council on Medical Education and Hospitals have been in attendance. The Board of Trustees is grateful to those who have participated in the conferences, and its members believe that much good has resulted from frank discussion of present day problems, with which all of the organizations represented are concerned. It has been made possible to initiate certain cooperative undertakings which, if successfully prosecuted, should result in the avoidance of duplication of effort, in a fuller understanding of the objects that the medical profession through its various agencies is striving to attain and in the development of further plans which, if successfully prosecuted, will promote the art and science of medicine and the betterment of public health.

Tax Ruling of Bureau of Internal Revenue

As the Board of Trustees has previously reported to the House of Delegates, the Bureau of Internal Revenue of the United States Government on April 28, 1938, issued a ruling declaring the American Medical Association liable for the payment of Social Security taxes. In accordance with instructions received from the House of Delegates, the Board of Trustees, through counsel, appealed for a reversal of this ruling and a communication dated Nov. 4, 1939, was received from the Commissioner of Internal Revenue on Nov. 6, 1939, stating that the ruling whereby the Association had been made liable for the payment of taxes under the sections of the statutes pertaining to unemployment compensation and old age benefits had been revoked. Thus the status of the American Medical Association as a scientific and educational organization rather than as a business league has been reestablished.

Payments for taxes made to the state of Illinois have been returned to the Association, but at the time of the preparation of this report sums paid directly to the federal government have not been repaid.

A bill providing that scientific and educational organizations heretofore exempt under existing statutes shall be required to pay Social Security taxes is now pending in Congress.

Committee on Air Conditioning

The Committee on Air Conditioning has completed the compilation of an extensive bibliography on air conditioning, and the Board of Trustees is endeavoring to make desirable arrangements for the publication of this bibliography.

Committee to Study Problems of Motor Vehicle Accidents

The report of the Committee to Study Problems of Motor Vehicle Accidents submitted to the House of Delegates at the St. Louis session has attracted widespread attention, and hundreds of printed copies of this report have been distributed.

Advisory Committee on Advertising of Cosmetics and Soaps

The Advisory Committee on Advertising of Cosmetics and Soaps continued to consider those cosmetic preparations which were submitted to THE JOURNAL and HYGIEA for advertising. The purpose of this Committee is to protect the readers of these publications from extravagant claims, to be of service to those members of the medical profession who make inquiry and to place the consideration of cosmetics on a higher plane. This was particularly necessary when the Committee was formed, before the advent of the Food, Drug and Cosmetic Act and the Wheeler-Lea Amendment. Whether or not it will be necessary to continue this Committee and maintain this service in view of the new laws is a matter which will come before the Board of Trustees.

A most welcome change in the attitude of cosmetic manufacturers in advertising has been evinced within the last year. For the first time cosmetics have been brought under some fashion of control with the advent of the new laws. Those concerns whose products had previously been passed on by the Advisory Committee on Advertising of Cosmetics and Soaps found little difficulty in meeting the new federal regulations. The Committee has gone further in its considerations than the federal regulations because it has demanded scientific evidence before giving recognition to unusual claims. Among the rulings adopted by the Advisory Committee in 1939 were the following:

The Committee cannot countenance the recognition of any preparation to be used for the self-medication of the eyes.

The quantitative formulas of all products now being advertised in publications of the American Medical Association and those now under consideration for acceptance must be filed with the Committee on or before Jan. 1, 1940. All future submissions must be accompanied by a quantitative statement of ingredients.

In the event that any product is accepted for advertising, no change may be made in the formula without notification and consent of the Committee, so far as the accepted status is concerned.

All products which contain colors or dyes must be accompanied by a statement that said colors or dyes have been certified by the Department of Agriculture for use in cosmetics.

No claims for cosmetic products may be made to indicate that they nourish the skin, hair, scalp or lips or that they grow hair. No product or lotion may be said to go "deep down" into the pores. No cosmetic product may "restore" anything that nature possesses; it may supply or furnish. Lipsticks may not be termed "indelible," since this implies permanence.

It is gratifying to report that the majority of those who were asked to submit quantitative formulas responded favorably. The Committee has maintained the policy of not publishing articles over its name, but it has had the satisfaction of receiving the cooperation of many firms in revising their literature.

On Jan. 1, 1940, Dr. Paul C. Barton, Director of the Bureau of Investigation, was appointed Secretary of this Committee.

Resolution from Section on Ophthalmology

A resolution submitted to the House of Delegates at the St. Louis session by the delegate of the Section on Ophthalmology providing that the Board of Trustees be requested to appoint a special committee to study all phases of the problem of prevention of blindness and that a report of the activities of such committee be made at the 1940 session was approved by the House of Delegates and referred to the Board of Trustees.

This resolution received official consideration at a regular meeting of the Board of Trustees, and it was decided to refer the resolution to the Section on Ophthalmology, in which it originated, because of its inclusive nature and because the members of the Board of Trustees thought it was possible that the section might wish to amend the resolution so as to make it more specific in nature and to designate more clearly the duties to be assigned to the proposed committee. The resolution has been so referred and will, in all probability, be resubmitted to the House of Delegates in some form at the New York session.

Division of Drugs, Foods and Physical Therapy

The Council on Pharmacy and Chemistry, the Council on Foods and the Council on Physical Therapy compose the Division of Drugs, Foods and Physical Therapy, established largely for administrative purposes. Through this coordination of the

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work of the three councils and because of the whole-hearted, intensive cooperation on the part of their personnel, duplication of work is largely avoided and a higher degree of efficiency is attained.

Council on Pharmacy and Chemistry

The Council on Pharmacy and Chemistry completed its thirty-fifth year of service on Feb. 11, 1940. Two of the original members of the Council, Dr. R. A. Hatcher of Cornell University Medical College and Dr. Torald Sollmann of Western Reserve University School of Medicine, have served continuously and with great distinction since the creation of the Council. In the beginning, this Council was most largely concerned with problems created through practices of fraud and deception in the exploitation of secret, proprietary preparations. In the thirty-five years during which the Council has persistently maintained its efforts to bring about and maintain rationalism in the field of therapeutics, the nature of many of the problems confronting the Council has materially changed. There still exists a tendency on the part of some manufacturers of proprietary products to make overenthusiastic claims for their products, to promote complex mixtures of well known drugs under fanciful names, to exploit unessential modifications of established drugs and to promote the sale and use of products intended for therapeutic purposes before scientific evidence of therapeutic value has been established.

The members of the Council serve without any remuneration but freely give a large amount of their time and effort to the council's work. Conclusions of the Council with respect to products that have been submitted to it for official consideration are published whether or not such preparations are accepted for inclusion in the Council's official lists of accepted products. The Council operates under a set of rules, printed copies of which are available on request. While the rules now in effect are, in some respects, essentially the same as those adopted thirty-five years ago, the interpretation of these rules has been amplified and clarified to meet new conditions as they have arisen. A three-fourths majority vote of the Council is required for the adoption of any report pertaining to the acceptance of a submitted product for inclusion in New and Nonofficial Remedies, which constitutes the Council's list of accepted products.

No fee or payment of any sort is required or accepted from any one who submits products for official consideration by the Council.

WORK OF THE COUNCIL IN RELATION TO THE NEW FOOD, DRUG AND COSMETIC ACT

The Council on Pharmacy and Chemistry has for many years cooperated to the fullest possible extent with the Food and Drug Administration of the United States Department of Agriculture and with other agencies of the federal government. Under the new federal Food, Drug and Cosmetic Act, therapeutic products sold for prescription purposes, to be exempt from the provision requiring labels of drugs to bear adequate directions for use, must carry on the package label the statement "To be used only by or on the prescription of" a physician. In the case of drugs to be sold in interstate commerce that are not so labeled, an alternate method of labeling must be used whereby the product is proposed for the treatment of which the individual product is believed that the public will soon realize that a physician who prescribes products the labels of which do not bear the statement "To be used only by or on the prescription of" a physician is aiding in the promotion of undesirable products. The agencies of the federal Food, Drug and Cosmetic Act will administer of the federal Food, Drug and Cosmetic Act will deal properly for physicians to remember that it is not within the purview of administration agencies to determine whether or not a drug is a worth while addition to materia medica. This is one reason why it is more important than ever that the medical profession should give whole-hearted support to the work of the three councils which compose the Division of Foods, Drugs and Physical Therapy of the American Medical Association, because, after all, expert medical opinion must originate within the medical profession.

It seems to be evident that those manufacturers of therapeutic products who have cooperated with the Council on Pharmacy and Chemistry and have followed its leadership have found it easier to comply with the provisions of the Food, Drug and Cosmetic Act and of the Wheeler-Lea Amendment than have those who have not offered such compliance.

PUBLICATIONS OF THE COUNCIL

New and Nonofficial Remedies: This publication constitutes the official list of the Council of products submitted and approved for inclusion. In the last edition some new products have been added, while some which were formerly listed have been omitted either because of conflict with the rules of the Council or because they have been removed from the market. While New and Nonofficial Remedies is intended chiefly for the physician, it is also of value to others who are concerned with medicinal preparations including manufacturers of pharmaceutical products, pharmacologists, governmental institutions, teachers and students. More than 5,000 copies were sold in 1939, and paper bound copies were distributed among the members of one class of each recognized medical school.

Epitome of the U. S. Pharmacopoeia and National Formulary: Because of the issuance of a second supplement to the U. S. Pharmacopoeia XI, which became official Jan. 1, 1940, it was necessary that the Epitome be revised and, as this report is being prepared, arrangements for such revision are under way. It will be necessary to make a second revision, less important in character, when a new edition of the National Formulary, to be made available about Jan. 1, 1941, is published. Approximately 3,500 copies of the Epitome were sold in 1939.

Useful Drugs: The demand for this important publication of the Council has continued to such an extent and there have been such remarkable advances in materia medica and it is expected that necessary to make a complete revision and it is expected that this will have been effected early during the summer of the current year. The number of copies of Useful Drugs distributed in 1939 was 7,360.

Glandular Physiology and Therapy: Because of rapid advances being made in the field of hormone therapy, no revision of the book issued in 1936 has been attempted, but a series of articles pertaining to glandular physiology and therapy will be published under the auspices of the Council during the year 1940, and these articles probably will serve as the basis for an entirely new book.

A. M. A. Interns' Manual: The response to the issuance of this publication, prepared through the cooperation of the Council on Pharmacy and Chemistry and other councils and departments of the Association, has been very gratifying. A revised edition will be prepared for publication during the current year. The number of copies sold in 1939 was 2,250.

REPORTS OF THE COUNCIL

The Council has continued its policy of issuing timely reports dealing with therapeutic products in addition to the regularly published articles of acceptance. Sulfanilamide has attracted more attention within the last few years than any other therapeutic product. The rapid advancement of knowledge, developed after scientific investigations, of the nature and action of this drug is reflected in the fact that within the space of three years the Council has found it necessary to issue three revisions of its original statement pertaining to the actions, uses and dosage of sulfanilamide. It is felt that the work of the Council in this connection has been extremely useful and important and has served to impress the members of the profession throughout the country with the need for exercising all due care in the use of this particular drug. The Food and Drug Administration of the Department of Agriculture of the federal government has included sulfanilamide in its classification of drugs in interstate commerce that may not be lawfully sold over the counter. Early in 1939 the Council issued a preliminary report on sulfapyridine based on information compiled by the members of the Council and augmented by 100 investigators whose cooperation had been solicited through the columns of THE JOURNAL. The issuance of this report was followed by an announcement of the acceptance of sulfapyridine by the Food and Drug division of the federal government. Nine months thereafter it became necessary to revise the original statement in order that it might

more fully present the knowledge regarding the actions, uses and dosage of sulfapyridine that had been gained within that brief period.

These two examples clearly indicate the constantly increasing amount of work with which the Council must be concerned and reflect the intensive work being done by medical investigators in this country.

Among other reports published by the Council in 1939 were those dealing with hormone therapy. Articles on chorionic gonadotropin, testosterone and testosterone compounds were published during the last year, and a report on stilbestrol, quite conservative in nature, has been widely quoted in medical publications. In various other reports issued by the Council there has been discussion of the dangers of intra-urethral injection of local anesthetics, the use of manganese compounds in the treatment of dermatologic disorders, certain types of mercurial suppositories, bismuth preparations and other products that have been offered for use by the profession.

At the request of the Board of Trustees, the Council undertook a comprehensive study of the promiscuous use of barbitol and barbitol derivatives, and the first report based on this study was published in *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION* for April 8, 1939. At the close of the year a second report was being prepared.

In cooperation with the Council on Foods, a statement on the status of vitamins was issued and attracted such widespread attention that it became necessary to make it available in pamphlet form. The continuing interest in the vitamins requires further study on the part of both the Council on Pharmacy and Chemistry and the Council on Foods and also makes it necessary to continue attempts to counteract unwarranted capitalization of vitamin preparations by purely commercial interests.

It would require much more space than is available or than can be used in a report of this kind to give a full account of the work of the Council on Pharmacy and Chemistry or even to mention all the individual products or the nature of all the problems that have demanded and received consideration. That there is a constantly growing interest in the Council's work is clearly shown by the increasing correspondence and by the large number of conferences in which members of the Council's staff are called on to participate day after day.

Summary

The Council on Pharmacy and Chemistry completed its thirty-fifth year of service on Feb. 11, 1940. Dr. R. A. Hatcher and Dr. Torald Sollmann have served continuously as members of the Council since its creation in 1905. The members of the Council give a large amount of their time and effort to the Council's work without any remuneration. The nature of many of the problems confronting the Council has materially changed. The Council operates under rules which are available to any who are concerned. A three-fourths majority vote of the Council is required for the adoption of any report pertaining to the acceptance of a submitted product. No fee or payment of any kind is required or accepted from any one in connection with the submission or consideration of therapeutic products.

The Council has continued to cooperate with the Food and Drug Administration and with other agencies of the federal government. Under certain provisions of the new federal Food, Drug and Cosmetic Act, therapeutic products sold for prescription purposes must bear on their labels the statement "To be used only by or on the prescription of" a physician. The proper agencies of the federal government will no doubt deal effectively with mislabeled products, but it is not within the purview of such agencies to determine whether or not a drug is a worth while addition to materia medica and it is therefore highly important that the profession give whole-hearted support to the work of the Council. Apparently manufacturers of therapeutic products who have cooperated with and followed the leadership of the Council on Pharmacy and Chemistry have found it easier to comply with the provisions of the Food, Drug and Cosmetic Act than have those who have not so cooperated.

Satisfactory distribution of the publications of the Council has continued. Revisions of some of the Council's publications are now under way and new editions will be published this year. The Council has continued to issue timely reports dealing with therapeutic products in addition to the regularly published articles of acceptance.

The work and reports of the Council concerned with sulfanilamide and sulfapyridine have been extremely useful and important and have served to impress physicians with the need for the exercise of care in the use of these drugs.

That interest in the work of the Council on Pharmacy and Chemistry is constantly growing is clearly shown by the increasing correspondence and by the large number of conferences in which members of the Council's staff are called on to participate.

The Chemical Laboratory

At the time of the annual session in St. Louis in 1939 the Chemical Laboratory was badly damaged by a fire originating from causes not connected with any laboratory procedure. Much of the physical equipment of the Laboratory had to be replaced, and the walls, floors and laboratory furniture entirely refurbished. A satisfactory insurance adjustment was made and the Laboratory was completely renovated and, in some respects, greatly improved. For some weeks the work of the Laboratory was curtailed.

During the year the activities of the Chemical Laboratory were largely concerned with the examination of the constantly growing number of new products submitted to the Council on Pharmacy and Chemistry, with the establishment of standards for these products and with the reexamination of previously accepted products. Much attention has been devoted to the various brands of sulfanilamide, and during the year standards for sulfapyridine were established.

The new product sobisminol (and sobisminol solution) has been the subject of intensive study in the Laboratory with a view of establishing satisfactory standards. Other important investigations have been concerned with racedrine and its salts; a solution of sulfanilamide in a glucose complex; determinations on stability of mercurials after prolonged storage; estrogenic substances; vitamin preparations obtainable in pure form such as nicotinic acid, thiamin chloride and others; gastric mucin; sodium citrate and sodium chloride for the purposes of blood transfusion banks; various vasoconstrictors, and mercury and bismuth compounds.

The microchemical and spectrographic divisions are constantly in operation and have contributed greatly to the efficiency, accuracy and facilitation of the work of the Laboratory.

Members of the staff have appeared before several important scientific societies during the past year.

Council on Physical Therapy

The Council on Physical Therapy has continued its investigations of physical apparatus and methods and the issuance of reports based on such investigations, and has endeavored to promote the use of sound physical therapeutic measures and to encourage research in the field of physical therapy. The Council has attempted to gather and to disseminate information that will be helpful to physicians in determining the therapeutic value of devices and methods employed in administering physical therapy.

Important activities of the Council during the last year included the consideration of audiometers and hearing aids, inhalators and resuscitators, radium and radon seeds, short wave diathermy equipment, galvanic generators, "fever therapy" appliances, respirators and radio interference said to be caused by electromedical equipment.

AUDIOMETERS AND HEARING AIDS

In its investigations pertaining to audiometers and hearing aids, the Council has had the advantage of active and intensive cooperation on the part of a number of highly qualified con-

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sultants, who have devoted a large amount of time and effort to the study of such apparatus and devices as diagnostic and meliorative aids. Minimum requirements for the acceptance of audiometers for inclusion in the official lists of the Council have been adopted and published, and, up to the time of the preparation of this report, two audiometers apparently have recognized the requirements established by the Council as being reasonable and just and will, no doubt, attempt to meet these requirements.

Much attention has been devoted by the Council on Physical Therapy and its consultants to the study of hearing aids. Recently a new form of hearing aid, the vacuum tube type, has been produced and probably will assume an important place in this particular field. For some years the carbon microphone hearing aid has been the most popular appliance but, because of phenomenal advances and developments in radio circuits and in the application of radio engineering principles, vacuum tube hearing aids utilizing crystal microphones and receivers and amplifying tubes are being perfected to a high degree. The weight of these wearable appliances has been considerably reduced. It is yet too early to determine the relative efficiency of performance of these devices, their upkeep or their ability to stand up under exacting requirements.

The Council's consultants have been studying possible methods for calculating percentage loss of disability due to deafness. Several methods have been proposed, but none have yet been accepted.

The action of the House of Delegates in St. Louis, 1939, approving the program of the Council to formulate a method of determining ear disability has met with favor from otologists, compensation boards, courts of law and others interested in the problems of the deafened.

RADIO INTERFERENCE

One of the most immediate problems confronting the Council and the users of electrotherapeutic apparatus is that concerned with the elimination of radio interference caused by such apparatus. Officials of the Federal Communications Commission, other governmental agencies and manufacturers have actively cooperated with the Council in the attempted solution of this problem. Two methods for the elimination of radio interference have been proposed and are now being carefully studied in the hope that a solution can be effected whereby electrotherapy apparatus can be made available for use without undue cost or other hardship to the profession, to manufacturers of such apparatus or to the public.

One of the methods proposed involves the screening of treatment rooms and the other the reservation of a definite frequency band in the electromagnetic spectrum.

RESEARCH

Through its Committee on Research, the Council on Physical Therapy has awarded five grants in aid of research: (1) to assist in experimental work on the effect of heat in bone and joint repair, (2) for the investigation of proper methods of shielding diathermy equipment, (3) for the investigation of dosage meters, (4) for the investigation of the effect of facial respiration and (5) for the determination of human physical therapy procedures on the temperature of human muscles and the influence of various forms of electrical currents and various methods of application of massage.

The results of several investigations supported by grants of the Council have been published.

INVESTIGATION OF APPARATUS

The consideration of apparatus and the publication of reports based on the Council's investigations have constituted major activities of the Council. In numerous instances the Council has found it necessary to reinvestigate and reconsider submitted appliances several times before final reports could be published. This has been especially true with respect to short wave diathermy apparatus.

Reports on fifty-one pieces of apparatus have been published in THE JOURNAL. In a number of instances apparatus has been withdrawn from the market when the Council's reports have been made available to manufacturers, who will in most instances, it is confidently expected, make earnest efforts to perfect the machines which they produce.

The book "Apparatus Accepted" is in process of revision and is expected to be ready for distribution within a short time. The previous editions of this book have had a wide distribution, and many physicians have reported that they have found it a valuable aid in the selection of apparatus.

SUN LAMPS

Minimum requirements for the acceptance of sun lamps have been revised, officially adopted by the Council and published. To meet qualifications under the requirements of the Council, radiation characteristics of wavelengths shorter than 2,800 angstroms should not be in excess of the total ultraviolet energy, that is, 1 per cent of the total ultraviolet energy between 2,804 and 3,132 angstroms. Under the Council's requirements, therapeutic claims made for sun lamps are restricted to the extent that it may be claimed that these lamps may prevent rickets, may aid in promoting the soundness of bones and teeth and play an important part in the deposition of calcium. Claims for the prevention and cure of colds, for the building up of resistance and for the prevention of respiratory diseases are not accepted for the reason that satisfactory clinical evidence to substantiate such claims has not yet been submitted.

ROENTGEN RAY AND RADIUM

The Council has proceeded cautiously in its investigation of roentgen ray apparatus, its investigations being largely confined to small equipment. In the investigation of large installations, the Council has sought the cooperation of the National Bureau of Standards. This bureau in the past has generously extended cooperation to the Council in other fields of investigation. It is understood that the National Bureau of Standards is enlarging its facilities for investigation of roentgen ray apparatus regardless of size.

With the aid of consultants, two articles on roentgen rays are in process of preparation, one dealing with the dangers of roentgen rays and the other with minimum standards for fluoroscopes. The Council's consultants have strongly urged that physicians who undertake the use of roentgen ray equipment should be thoroughly qualified. The Council strongly recommends that all physicians desiring to make use of radium or radon should first obtain specialized instruction. The Council has recorded its official opinion to the effect that the indiscriminate use of radium or radon is a dangerous practice and that prescription of these products by mail should not be encouraged.

ABDOMINAL SUPPORTS, CORSETS AND TRUSSES

The Council has decided that after Jan. 1, 1940, it will not consider abdominal supports, corsets or trusses. The fitting of these devices is a highly individualized practice, and in many instances fittings by laymen may or may not produce the therapeutic effect desired by the attending physician. In view of the lack of control of the fitting of such devices, the Council has deemed it necessary to remove them from its official consideration.

EDUCATIONAL WORK

The Council has attempted to be helpful to physicians who wish to practice sound physical therapy. Council members and consultants have delivered approximately eighty lectures and radio talks of an educational nature, and motion pictures illustrating the use of sound physical therapy devices and methods have been shown on 227 occasions.

The Handbook of Physical Therapy, published under the auspices of the Council, has recently undergone revision. The following articles have been published in THE JOURNAL, having been prepared at the instance of the Council:

Minimum Requirements for Acceptable Audiometers.
Fever Therapy by Physical Means. Frank H. Krusen, M.D., and Earl C. Elkins, M.D.
Medical Diathermy.
Radon Seeds: Physical Considerations. Do They Leak and Do They Irritate Tissues? Edith Quimby and A. U. Desjardins, M.D.
Atrophy and Regeneration of the Gastrocnemius-Soleus Muscles. Herman Chorr, M.D., David Cleveland, M.D., H. A. Davenport, M.D., Ralph E. Dolkart and Gertrude Beard.

Summary

The Council on Physical Therapy continues to perform its function of investigating and issuing reports on physical therapy apparatus and methods, of recommending sound physical therapeutic measures and of encouraging research.

Minimum requirements for acceptable audiometers have been published, and the Council has considered several new vacuum tube hearing aids. The House of Delegates has endorsed the work of the Council in the formulation of a method of calculating percentage loss of disability due to deafness.

The consideration of apparatus and the publication of reports have been the major activities of the Council. A new edition of *Apparatus Accepted* is being made ready for distribution.

Five grants in aid of research were awarded during the year.

The problem of securing the most desirable means for eliminating radio interference caused by electromedical equipment has been one of the major issues commanding the attention of the Council. Two methods, one the screening of the treatment room and the other the reservation of a definite frequency band in the electromagnetic spectrum, have been suggested.

The minimum requirements for the acceptance of sun lamps have been revised, adopted and published.

The Council is seeking the cooperation of the National Bureau of Standards in the investigation of large installations of roentgen ray apparatus. Two articles, one on the dangers of roentgen rays and another on minimum standards for fluoroscopes, are being prepared.

The Council on Physical Therapy has again gone on record condemning the indiscriminate use of radium and radon.

The Council has been active in its educational work designed to assist those who wish to practice sound physical therapy. This has been done mainly through radio talks, lectures and motion picture films. Several articles and a new edition of the *Handbook of Physical Therapy* have been published.

Council on Foods

The Council on Foods, while still giving consideration to individual food products, is directing its attention more and more to broad nutritional questions and is attempting to encourage research in the field of nutrition. It endeavors to compile and disseminate information based on scientific investigations developed by the members of the Council, its consultants and other workers, to encourage the application of scientific knowledge in the manufacture of food products and in the preparation of foods and to discourage unwarranted claims in advertising and in other promotions of manufactured foods.

The members of this Council, as do the members of other councils of the Association, serve without compensation, and no fee or payment of any kind is required from those who submit products for official consideration by the Council. All actions, whether in the consideration of food products or of reports prepared for publication, represent the group opinion of all members of the Council.

ACCEPTED FOODS

The book *Accepted Foods and Their Nutritional Significance*, recently published, is the official compendium of the work of the Council on Foods. This book provides a brief summary of the decisions of the Council regarding food products and nutritional claims that can be properly made for them. The rules under which the Council operates are presented in the book, as are the products accepted by the Council for inclusion in its official lists. In *Accepted Foods and Their Nutritional Significance* there is discussion of the claims that can properly be made for a food product according to its composition. This discussion is concerned with the estimated daily requirement for each of the dietary essentials and the proportion of this requirement which certain foods supply in average portion or in an amount that can be consumed in a day, the relative frequency with which an item of food may reasonably appear in the ordinary diet, the availability of the food product from the point of view of cost and the ease or difficulty with which the given dietary essential is obtainable. It is pointed out that the rating of foods intended for the feeding of the sick or for feed-

ing infants must be given special consideration because the problems involved are different from those connected with the use of ordinary staple foods by well persons. Manufacturers or others interested may apply the principles developed by the Council as presented in this book to determine what constitutes suitable claims for any food product of which the composition is known, and it is possible for a producer of foods to determine for himself just what general or nutritional health claims can be properly made.

Numerous examples of vague and inaccurate claims and of the misuse of terms are cited. Various sections of the book are devoted to a discussion of classes of foods such as fats, oils and their products, fruit juices, canned and dried fruits, grain products, preparations for infant feeding, fish and sea foods, milk and milk products, foods for special dietetic purposes, sugars and syrups, vegetables and unclassified and miscellaneous foods. It is believed that *Accepted Foods and Their Nutritional Significance* constitutes an important contribution on the part of the Council that will greatly aid physicians, investigators in the field of nutrition and manufacturers of food products in acquiring helpful information and in applying scientific knowledge concerning foods and their uses.

COUNCIL REPORTS

The Council has continued the issuance of official reports. Among those published during the year was one prepared by Dr. George R. Cowgill, a member of the Council, on "The Need for the Addition of Vitamin B₁ to Staple Foods," and another on "The Loss of Vitamin C in Orange Juice on Standing," based on analyses made by Dr. H. J. Fisher of the Connecticut Agricultural Experiment Station at the request of the Council. Other published reports have dealt with vitamin mixtures, claims for food products rich in certain vitamins, lead in foods, the fluorine content of foods and the fortification of foods with vitamins and minerals.

An article prepared by Dr. Philip C. Jeans, a member of the Council, presented a concise summary of the pertinent facts concerning homogenized milk. This article was published in *HYGEIA* and served as the basis for a discussion of this relatively new type of milk in *Accepted Foods and Their Nutritional Significance*.

During the year each issue of *HYGEIA* has contained an article describing in nontechnical terms the nutritional value of various classes of foods. These articles, based on Council opinions, have been prepared in the office of the Secretary of the Council and have done much to inform the public as to the nature of the work the Council is attempting to do.

FORTIFICATION OF FOODS

As a result of studies conducted by the Cooperative Committee on Vitamins, representing this Council and the Council on Pharmacy and Chemistry, the following statement of policy was adopted by the Council on Foods.

The Council on Foods desires to encourage the restorative addition of vitamins or minerals or other dietary essentials in such amounts as will raise the content of vitamin or mineral or other dietary essential of general purpose foods to recognized high natural levels, with the provision that such additions are to be limited to vitamins or minerals or other dietary essentials for which a wider distribution is considered by the Council to be in the interest of the public health.

The Council is opposed to the indiscriminate fortification of general purpose foods with vitamins or minerals or other dietary essentials. By fortification is meant the addition to a food of such an amount of a vitamin or other dietary essential as to make the total content larger than that contained in any natural (unprocessed) food of its class.

Under the joint sponsorship of the Council on Foods and the Council on Pharmacy and Chemistry, authoritative reviews of vitamins were published as a symposium in *THE JOURNAL* in 1938. These articles were revised in order to bring the material up to date and were published in book form in 1939. This volume affords a concise treatise on the chemistry, physiology, nutritional aspects and therapeutic usefulness of the important vitamins as well as of some of the less well known substances and has been widely distributed.

RULES AND DECISIONS

No changes were made during the year in the official rules of the Council except for the purposes of explanation and clarification, and there has been little change in the nature of decisions regarding advertising claims. The Council has pub-

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lished a statement setting forth what it believes constitutes allowable claims for the vitamin and mineral content of canned foods and vegetables intended for infant feeding. Available evidence indicated that the processing of these foods does not result in any marked reduction in the vitamin A, riboflavin or mineral content of the fresh food. On the other hand, vitamins B₁ and C are known to be somewhat readily destroyed, and no claims for the retention of these vitamins in canned foods and vegetables for infant feeding are recognized by the Council unless they are definitely supported by satisfactory evidence. Another decision of the Council had to do with fluid milk products for which soft curd claims are made. Under this decision the Council has held that a curd tension of 20 Gm. or less as measured by the usual methods must be demonstrated, and that it must be shown that the supply of milk and the processing result in a product that uniformly has this low curd tension. Among other decisions of the Council were those pertaining to iodized salt and to a stabilizer containing calcium thiosulfate and calcium oxide developed to aid in the retention of iodine by salt on standing. The Council has ruled that this stabilizer is acceptable for inclusion in the official lists of the Council.

COUNCIL MEMBERS AND CONSULTANTS

Dr. Joseph Brennemann of Chicago and Dr. E. M. Bailey of New Haven, Conn., found it necessary to resign as members of the Council at the expiration of their terms of membership in 1939 because of the pressure of other duties. Both of these gentlemen served faithfully and efficiently, and the Council regrets that it will not longer have the benefit of their extremely helpful service. Dr. Tom D. Spies of Cincinnati and C. S. Ladd of Bismarck, N. D., were elected to fill vacancies on the Council. Among the consultants who have cooperated actively with the Council during the year and have rendered most valuable service are Drs. Hugh R. Butt, Adam A. Christman, Kate Daum, Grace MacLeod and Genevieve Stearns, Prof. Henry C. Sherman and Miss Mary A. Foley.

Summary

During the year the Council on Foods continued to give consideration to individual food products, but its attention is being directed more and more to broad nutritional questions. The Council attempts to encourage the application of scientific knowledge in the manufacture of food products and research in the field of nutrition while it tries to discourage unwarranted claims for advertising and promotions of manufactured foods. The recently published book *Accepted Foods and Their Nutritional Significance*, which constitutes the official compendium of the work of the Council on Foods, presents a summary of the decisions of the Council, the rules under which the Council operates and the products accepted by the Council for inclusion in its official lists. Manufacturers or others interested in this book may determine what constitutes suitable claims for any food product of which the composition is known.

Important official reports of the Council published during the year have dealt with the need for the addition of vitamin B₁ to staple foods, the loss of vitamin C in orange juice on standing, vitamin mixtures, claims for food products rich in certain vitamins, lead in foods, the fluorine content of foods and the fortification of foods with vitamins and minerals.

Each issue of *Hygeia* during 1939 contained a non-technical article based on Council opinions describing the nutritional value of various classes of foods. An article concerning homogenized milk also was published in *Hygeia*.

As a result of studies conducted by the Cooperative Committee on Vitamins, a statement of policy was adopted in which the Council indicated its desire to encourage the restorative addition of vitamins, minerals or other dietary essentials in such amounts as to raise the vitamin, mineral or other dietary essential content of general purpose foods to recognized high natural levels, and its opposition to the indiscriminate fortification of general purpose foods. The reviews of vitamins which were published in *The Journal* in 1938 were

revised, brought up to date and published in book form in 1939. A statement of what the Council believes constitutes allowable claims for the vitamin and mineral content of canned foods and vegetables intended for infant feeding was published in 1939. Numerous decisions of the Council dealt with food products of various kinds.

Council on Industrial Health

Shortly after its establishment in 1937, the Council on Industrial Health outlined a program of work which included as some of its major objectives the following undertakings: (1) to provide information concerning the objectives and methods of industrial health; (2) to investigate activities in the field of industrial health engaged in by lay and professional organizations; (3) to study medical nomenclature and other problems relating to classification, indexing and recording of occupational diseases; (4) to review compensation laws and proposals for new laws which may have an effect on industrial health.

During 1939 the Council on Industrial Health undertook specific activities to advance this program, as follows:

EDUCATION

Annual Congress on Industrial Health.—The second Annual Congress on Industrial Health, held in Chicago in January 1940, included presentations of administrative industrial medical details as well as round table discussions intended for chairmen and members of committees on industrial health of state medical associations and discussions of practical problems in industrial medicine and traumatic surgery. In the opinion of the Council these congresses fulfil a very useful function, and regular repetition is justified.

Special Industrial Health Number of The Journal.—Special investigations were undertaken and material was collected as the basis for the Industrial Health Number of *THE JOURNAL*, which was recently published.

Publications on Medical Organization in Industry.—A number of articles have been completed and others are in preparation which will explain specific functions of medical service to industry and will be of greatest value to physicians who serve in industry only casually.

Special Articles on Occupational Disease.—On completion of the articles on medical organization in industry, a further series is projected which will facilitate access to authoritative information on the nature, incidence, duration and end results of exposure to unhealthful occupational materials, processes or environments.

Clearing House.—The Council itself or through consultants is answering inquiries about industrial matters in substantial numbers. Many of these were answered formerly by other agencies in the American Medical Association. A considerable body of useful material has been collected, indexed and filed to facilitate answers to inquiries received from physicians and from the public.

Survey of Industrial Medical Education.—During the past year the Council has inquired of all medical schools, schools of public health, graduate schools and other sources concerning the extent and character of attention assigned to industrial health in undergraduate and postgraduate curriculums. The results of this study were tabulated for publication in the special Industrial Health Number of *THE JOURNAL*. In both classifications the opportunities for physicians have been strictly limited. It is the hope of the Council on Industrial Health that investigations of this character will impress on educators the need for greater attention to fundamentals of sound industrial medical service.

Industrial Hygiene Syllabus.—The survey of industrial medical education has convinced the Council that one reason for limited teaching arises from a lack of clear definition of what needs to be taught. A syllabus for industrial hygiene instruction, therefore, is in preparation, which it is hoped will be acceptable to the Council on Medical Education and Hospitals and subsequently to the medical schools as a basis for more extensive teaching programs.

Contact with Constituent State and Component County Medical Societies.—One of the most important features of the Council's educational program has grown out of the realization that

training of physicians with respect to industrial health will be greatly facilitated through the participation of state medical associations. At the suggestion of the Council, thirty-four of the constituent state associations have formed committees on industrial health or have indicated existing agencies through which the Council can act in its efforts to clarify and to elevate standards of industrial health. Already considerable educational activity has been developed by this means in meetings and in state medical society journals. To facilitate interchange of information between the Council and the state committees, a bulletin has been developed through which it is felt objectives will more rapidly be realized. The influence of the state committees is already being extended into component county medical societies, a circumstance of first importance, since industrial health problems are encountered earliest in the county organizations and dealt with most directly there. The Council on Industrial Health expects to lend every encouragement possible to these activities and has considered that, if necessary, field activities could profitably be directed toward assisting in the development of proper medical leadership to meet local problems.

Exhibits.—An exhibit on silicosis and asbestosis is being prepared for demonstration at meetings of constituent state medical associations and elsewhere. Other exhibits are contemplated which will deal with important features of industrial health.

RELATIONSHIPS WITH GROUPS AND ORGANIZATIONS

The Council on Industrial Health has expanded its knowledge of activities of numerous lay and professional organizations and of governmental and private facilities. The influence of social security legislation on the rapid extension of industrial hygiene activity into the state departments of health has been looked on with much interest. A few large industrial medical services have been visited, and reports about the nature of the industrial medical service supplied have been filed. In all other readily accomplished ways the office of the Council has attempted to keep in touch with the activities of manufacturing, trade and labor associations and with the developments in field and laboratory investigation which have occurred during the past year. The Council proposes to continue acquiring information of this type and to make it available to the general medical profession.

The Council has also maintained close working relations with other agencies in organized medicine in addition to contacts with constituent state and component county medical societies. Matters relating to industrial affairs previously undertaken by other bureaus and councils have been referred to the Council on Industrial Health for solution. The Council hopes also to promote the inclusion of appropriate aspects of industrial health as features of programs in the various sections of the Scientific Assembly.

NOMENCLATURE IN INDUSTRIAL HEALTH

The study of nomenclature in the field of industrial health has been continued with the objective in mind of defining usages and industrial medical parlance so that ultimately there may be some common acceptance of meaning and interpretation. This work has suggested additional useful activities, notably the preparation of a bibliography of authentic industrial health literature and surveys of the recording and reporting of occupational disease.

WORKMEN'S COMPENSATION

As a preliminary investigation in the exceedingly complex field of medical relations under workmen's compensation administration, a survey of medical advisory staffs to compensation authorities has been started with particular reference to direct or indirect relationships which may exist with official medical organizations.

NEW ACTIVITIES

During the year other problems have been submitted to the Council as deserving of its attention. The more important of these problems are as follows:

Physical Examination in Industry.—There are sound reasons for the belief that preemployment and periodic physical examinations in industry if properly conducted are of real value to employers and employees alike and that this practice will grow. The Council is interested in the scope of these examinations, the character of the report forms, the privileged nature of the records, the relation to workmen's compensation, the conditions

that will influence employment or its continuation after examination, the cost and who will be called on to provide the service. The whole problem is one of unusual interest and will probably form the basis for separate reports from time to time.

Standards of Industrial Medical Practice.—The Council has considered from the outset that there is real need for improving the status of industrial physicians as ethical practitioners and that this status can be reached most rapidly through the establishment of standards of conduct somewhat specific in character which would have the effect of defining and clarifying all relationships between the physician in industry and the employer, the employee and his fellow physicians. The groundwork for such a report has been prepared.

Occupational Disease Reporting.—The Council has been impressed with the unsatisfactory nature of occupational disease reporting by physicians and the scarcity of available statistics on the incidence of occupational disease. Inquiries have been directed to each state health department and compensation board to determine present practices. Relatively few make any provision for adequate receipt and publication of occupational morbidity and mortality statistics to the end that it is almost impossible to obtain adequate information in this country on the incidence of occupational disease. The Council proposes to determine how it may contribute to improved occupational disease reporting.

Industrial Nursing Education.—The professional status of the nurse in industry has engaged the attention of the Council, which has felt that some initiative might be taken to improve qualifications, education and experience for these important assignments.

Census of Physicians.—The Council has enlisted the assistance of officers of constituent state and component county medical societies and of committees on industrial health in the constituent state medical associations to obtain as complete a list as possible of physicians engaged in full or part time industrial medical service. Although this list is still incomplete, a total of almost 3,000 names has been received. Many of these physicians have been helpful to the Council by defining the nature of their industrial medical services, classified by size and type of plant. The accumulation of information of this character is essential as the basis for efforts to improve standards of industrial practice and to elevate the status of the industrial medical practitioner.

Summary

The features of the educational program undertaken by the Council on Industrial Health have included the promotion of an Annual Congress on Industrial Health, the publication of a special Industrial Health Number of *The Journal of the American Medical Association*, the preparation of special articles on medicine in industry and on occupational diseases, the development of exhibits on industrial health, the furtherance of the Council's function as a clearing house of information and a survey of industrial medical education—undergraduate and postgraduate—to serve as a basis for specific recommendations concerning expansion of adequate industrial medical teaching.

At the request of the Council, thirty-four constituent state medical associations have organized committees on industrial health or have indicated existing agencies through which the Council can act in efforts to elevate standards in the field of industrial health. A bulletin has been developed to facilitate interchange of information between the Council and state committees.

The Council has continued to investigate and has attempted to interpret for the general profession the activities of lay and professional groups interested in industrial health.

Studies of terminology in industrial health are being carried on with the view of the preparation of a bibliography, which, it is hoped, will aid in improving the standards of the reporting of occupational diseases by physicians.

Efforts are also being directed toward the development of more extensive and more accurate morbidity and mortality statistics.

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A survey of medical advisory staffs to workmen's compensation authorities is near completion. Physical examinations in industry and the need for accurate data defining the scope, technics, laboratory work and costs of such examinations have commanded the active attention of the Council.

A census of industrial physicians has been undertaken, and the cooperation of such physicians in the matter of defining the nature of industrial medical services according to size and type of industry and their advice concerning the training necessary for successful industrial medical service have been solicited. Effort has also been made to establish a census of industrial clinics, and the Council has attempted to develop interest in industrial nursing education.

The preparation of a statement outlining standards of industrial medical practice, which may have far reaching influence in defining the proper relationships and activities of the physician in industry, is under way.

Bureau of Health Education

The work of the Bureau of Health Education, until recently known as the Bureau of Health and Public Instruction, has for the most part been directed along the same lines as heretofore reported to the House of Delegates, though there has been a significant increase in volume.

During the year the Bureau received and answered more than 10,000 letters from laymen. Regular Bureau correspondence included the receipt of and replies to more than 5,000 letters, while miscellaneous mail, including communications stimulated by the Association's radio broadcasting program and those received from persons who visited the Association's exhibits at the New York World's Fair and at the Golden Gate International Exposition in San Francisco, amounted to approximately 4,500 pieces.

RADIO PROGRAM

In cooperation with the National Broadcasting Company, the second series of the program "Your Health" was completed in June 1939, at which time the fourth season of dramatized network broadcasting terminated.

A new series of radio broadcasts under the title "Medicine in the News" was begun in November 1939. These programs are coordinated with the date of issue of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and are based each week on articles, editorials and clinical and minor notes appearing in THE JOURNAL for the same week and, to some extent, on current articles appearing in HYGEIA. This radio program is scheduled for Thursday afternoon, which is the successor to the AMERICAN MEDICAL ASSOCIATION NEWS, the successor to THE JOURNAL and HYGEIA clippings. Thus the AMERICAN MEDICAL ASSOCIATION NEWS and the radio broadcast appear coordinately two days in advance of receipt of THE JOURNAL by its subscribers.

State and county medical societies and the Woman's Auxiliary have continued their valuable cooperation in publicizing the Association's broadcasting program. Seventy stations on the Blue Network were reported as participating in the broadcasting of this program in December 1939. Twelve broadcasts, including two National Broadcasting Company networks and one Columbia Broadcasting System network, were made during the St. Louis session.

The radio library maintained by the Bureau provided approximately 5,300 prepared radio "talks" that were sent out on request. Thirty-six medical societies received material from the radio library for the first time in 1939. Approximately 125 county and state medical societies received through the Bureau of Health Education timely material suitable for special broadcasts. The members of the Bureau's staff delivered eleven radio addresses in 1939 over stations located in various cities. Advice and suggestions with regard to outside radio programs were offered in 145 instances. One health department in New York State asked for and received permission to print and distribute copies of one radio "talk," this health department having been authorized by the county medical society immediately concerned to use the material prepared by the Bureau of Health Education. The Bureau examined and checked 122 health items prior to broadcast for an important radio station in New York City.

PROTECTION OF RESEARCH

The Bureau of Health Education has endeavored to cooperate with the Committee for the Protection of Medical Research and in May 1939 distributed more than 5,000 copies of a pamphlet entitled "Animals in Research" to the members of graduating classes of medical schools.

COOPERATION WITH GOVERNMENTAL AGENCIES

As in previous years, the Bureau has continued its cooperation with departments of the federal government and of state governments, including health departments and departments of education, and has also cooperated as fully as possible with local departments of health, school boards and libraries. The states and their subdivisions to which service has been extended are too numerous to list in this report. The federal departments and divisions with which the Bureau has maintained cooperative relationship include the Federal Security Agency, the Department of Agriculture, the Department of the Interior, the Department of Labor and the United States Immigration Service.

The Director of the Bureau of Health Education has served for several years as a member of the Children's Bureau Advisory Committee. The Children's Bureau is interested in expanding maternal and child health work through state health departments and is committed to larger appropriations to be used for allotments to the states for this purpose. Programs originating in the states must be approved by the Children's Bureau. The development of merit system regulations during 1939 and of outlines of qualifications of personnel as well as of program objectives by the Children's Bureau indicate a definite tendency toward increased federal control, potential if not actual. Some of the regulations proposed by the Children's Bureau would seem to tend toward the concentration of the care of expectant mothers, of mothers and of young children, under social security schemes, in the hands of specialists rather than of general practitioners. There seems to be involved also a tendency toward having recent graduates in medicine specialize immediately, or very soon, after internship and special study.

COOPERATION WITH LAY ORGANIZATIONS

National Congress of Parents and Teachers.—For a number of years the Bureau of Health Education has maintained cordial relations with the National Congress of Parents and Teachers. Heretofore the Association, through the Bureau of Health Education, has provided about one half of the examination forms used annually by the Congress of Parents and Teachers, but this arrangement has been terminated by official action of the congress, so that in the future these forms will be purchased by that organization. The Director of the Bureau has served as a member of the Advisory Committee to the Summer Round-Up, a cooperative project between the National Congress of Parents and Teachers, the medical and dental professions and health authorities.

General Federation of Women's Clubs.—The Director of the Bureau has been a member of the Advisory Committee to the General Federation of Women's Clubs, though it was not possible for him to attend the annual meeting of the federation held in San Francisco in 1939. At that meeting a resolution was adopted endorsing the objectives of the National Health Program and urging favorable consideration by the Seventy-Sixth Congress to provide through necessary legislation for the expansion of public health and maternal and child health service, medical services for medically needy persons and a general program of medical care developed by individual states in cooperation with the medical profession and other professional groups according to their respective needs. The resolution further provided that the General Federation of Women's Clubs should recommend to its member clubs study of the state and community needs for improved health and medical services and of "the ways in which the National Health Program can meet their needs."

4-H Clubs.—The Director of the Bureau has also served as a member of the National Committee on Boys and Girls Club Work (4-H Clubs). The annual "healthiest boy" and "healthiest girl" contest continues, but larger numbers of boys and girls are being named each year as "healthiest boys and girls." The 4-H Clubs propose to interest themselves in teaching their members about the importance of the prevention and treatment of tuberculosis. A program is to be developed in one state where there is an efficient 4-H Club organization, and the state medical society, the state tuberculosis association and the state department of health are to be consulted for cooperation and for the development of plans. This project is still being discussed.

Joint Committee on Health Problems in Education.—The Joint Committee on Health Problems in Education, through which the American Medical Association and the National Education Association have maintained cooperative relations since 1911, held its annual meeting in Cleveland in 1939. The committee was reorganized under the following general principles:

1. A joint committee shall be established of the two organizations as a whole and not of any department or section of either one.
2. It shall include no representatives of other health agencies and shall be strictly a joint committee of the participating organizations.
3. The committee shall consist of five representatives of each organization, who shall be appointed to serve one, two, three, four and five years respectively for their first terms and for five year terms thereafter and shall not be eligible for more than two successive terms.
4. The committee shall have a chairman, a vice chairman and a secretary-treasurer, who shall be elected annually from among the members of the committee by the Hare system of proportional representation.

The reorganization had previously been approved in principle by the Board of Trustees of the American Medical Association and by the Executive Committee of the National Education Association.

The principal objectives of the Joint Committee on Health Problems in Education have been defined as follows:

- (a) To promote a better understanding between physicians and teachers.
- (b) To bring to bear on health problems in education the best thought in medicine and in pedagogy.
- (c) To identify health problems in education and endeavor to promote constructive solutions for them.
- (d) To seek publication of the conclusions of the committee through the columns of the periodical publications of the participating organizations whenever possible and to publish pamphlets principally as reprints or when special indications for such publication exist. The policy of the committee was modified to minimize the publication of pamphlets and to seek expression of the committee's activities through symposiums and through publication in health periodicals.

The Joint Committee as reorganized is composed of Dr. Charles C. Wilson, Dr. George Stoddard, Dr. N. P. Nielson, Miss Ann Whitney and Miss Fannie B. Shaw as representatives of the National Education Association, and of Dr. Edward Jackson, Dr. Isaac Abt, Dr. A. J. Chesley, Dr. Thurman B. Rice and Dr. W. W. Bauer as representatives of the American Medical Association. Dr. Charles C. Wilson, Hartford, Conn., is chairman and Dr. Thurman B. Rice, Indianapolis, is vice chairman.

A third Symposium on Health Problems in Education under the sponsorship of the Joint Committee together with the Section on Pediatrics, the Section on Preventive and Industrial Medicine and Public Health, the Section on Ophthalmology and the Section on Laryngology, Otology and Rhinology of the American Medical Association was held during the annual session of the Association in St. Louis. Arrangements have been made for a symposium on the same general subject during the New York session of the American Medical Association.

American Public Health Association.—The Director of the Bureau of Health Education is continuing his service as a section councilor of the Section on Health Education of the American Public Health Association.

Among other organizations with which the Bureau has maintained cooperative relations are the Committee on Public Health of the American Film Center, the Advisory Board of the American Camping Association and the Accident Prevention Conference of the United States Department of Commerce. The Director of the Bureau has, on invitation, attended several of the annual meetings of the Conference of State and Territorial Health Authorities of North America.

COOPERATION WITH STATE AND COUNTY MEDICAL SOCIETIES

The Bureau has continued its endeavors to serve as a clearing house of information to state and county medical societies and to be of assistance in developing cooperative programs and satisfactory relationships between the medical profession and other organizations working toward similar ends.

MEETINGS AND CONFERENCES

In 1939 the Director and the Assistant Director of the Bureau of Health Education appeared before 124 audiences in various parts of the United States. These appearances involved more than 40,000 miles of travel, and communities in eighteen states were visited. It was not possible to accept all the invitations extended to the Bureau's staff; forty-two such invitations had to be declined because of scheduled conflicts or for other important reasons. Attendance at twelve medical meetings addressed by members of the Bureau staff was 789. Eighty-three lay audiences were addressed with an attendance of approximately 30,000, and twenty-eight addresses were delivered before audiences composed of teachers, nurses and members of other professional groups with an attendance of more than 6,700.

HYGEIA CLIPPING LOAN SERVICE

The clipping loan service of HYGEIA material continued in popularity during the year. Requests for this service originated in every state in the Union with two exceptions, and additional requests were received from Canada, Hawaii and Norway. HYGEIA clipping collections lent to individual physicians to aid them in the preparation of educational talks numbered 769.

BUREAU PUBLICATIONS

Twenty-two new pamphlets were added to the list of publications maintained by the Bureau of Health Education, while six of the pamphlets formerly used were revised and two discontinued. More than 108,000 copies of the publications sponsored by this Bureau were sold in 1939.

A second series of health posters based on HYGEIA cover plates was prepared and published in 1939 after a large demand for the posters in the first series had developed. Sixteen such health posters made up into two sets, each set being provided at nominal cost, are now available.

The Director and Assistant Director of the Bureau have cooperated as fully as possible with the Editorial Department of THE JOURNAL and HYGEIA. Thirty-three articles originating in the Bureau of Health Education were published in 1939 in publications other than those of the American Medical Association.

REVISION OF PERIODIC HEALTH EXAMINATION MANUAL

The Manual of Suggestions for the Conduct of Periodic Examinations of Apparently Healthy Persons was revised during the year by a committee appointed in 1938 by the Board of Trustees. The members of this committee are Dr. W. W. Bauer, Chairman, and Drs. Fremont A. Chandler, George H. Coleman, W. C. Danforth, Haven Emerson, Parker Heath, Leland S. McKittrick, Gordon B. New, William A. O'Brien, C. D. Selby and Paul D. White.

The following have cooperated with the committee as consultants: Drs. Walter C. Alvarez, Ruth Cowan Clouse, Robert L. Dickinson, Harold S. Diell, Otto H. Foerster, Donald A. Laird, R. G. Leland, Lon W. Morrey, Carl M. Peterson, Paul A. Teschner and S. Bernard Wortis.

The revision of this manual was completed late in December of 1939, and the new edition will soon be published.

Summary

An important part of the work of the Bureau of Health Education is concerned with correspondence, and during the year covered by this report a total of 19,660 pieces of mail were handled.

Thirty dramatized programs were broadcast over the National Broadcasting Company network during the year. Approximately 5,300 pieces of broadcasting material were provided by the Bureau for the use of medical societies. Members of the Bureau's staff delivered addresses over local stations in various cities.

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The Bureau of Health Education has maintained cooperative relationships with official agencies of the federal government and of state governments in all instances whenever possible, as well as with twelve organizations of national scope.

Bureau of Legal Medicine and Legislation

On Jan. 1, 1940, at his own request, the retirement of Dr. William C. Woodward as Director of the Bureau of Legal Medicine and Legislation became effective.

The distinguished service that Dr. Woodward has rendered the Association is well known. Dr. Woodward directed the activities of the Bureau of Legal Medicine and Legislation from its organization in 1922 until his retirement. During these eighteen years he devoted his fine abilities unselfishly to the betterment of organized medicine and, while none always to the betterment of official cares, his wise counsel will be missed.

Mr. J. W. Holloway Jr., who has been associated with Dr. Woodward in the work of the Bureau since 1925, has been made Acting Director of the Bureau. Mr. George E. Hall Jr., a member of the bar in Illinois, has been added to the staff of the Bureau.

CORRESPONDENCE

During the period covered by this report, the Bureau has continued to serve as a clearing house of information concerning legislative and medicolegal problems of various types. It has cooperated with constituent and component medical societies in solving their problems in the fields covered by the Bureau of the Association and has, so far as the facilities of the Bureau permitted, provided such information as it is proper to provide for the use of individual members of the Association. Approximately 25 per cent of the correspondence during 1939 was with state associations, 50 per cent with individual physicians, 10 per cent with counsel for medical associations and for individual hospitals, boards of health and a miscellaneous group of correspondents. The number of practicing attorneys who tap the medicolegal resources of the Bureau is constantly increasing.

COURT DECISIONS OF MEDICAL INTEREST

The Bureau receives each week copies of all published decisions handed down by the courts of the several states and of the United States. Such of these decisions as are of particular medical interest are retained in the files of the Bureau, and abstracts of the more important ones are prepared for publication in *THE JOURNAL*. During 1939 approximately 116 columns of medicolegal abstracts were so prepared and published. The Bureau has republished in book form the medicolegal abstracts that appeared in *THE JOURNAL* during the years 1926 to 1930 and during the years 1931 to 1935. The plan has been to publish a volume of these abstracts every five years, and consideration is being given to making available in a third volume the abstracts covering the years 1936 to 1940.

Several important decisions have been rendered since the last report of this Bureau was submitted to the House of Delegates. Two of these cases involved the validity of basic science acts. The Supreme Court of Arkansas on January 15, last, upheld the constitutionality of the basic science act of that state in the case of *Stroud v. Crow*. This case was prosecuted by members of the executive board of the Arkansas Medical Society to restrain the chiropractic board from issuing, as it had been doing, licenses to persons not possessing basic science certificates and to enjoin named chiropractors from continuing their licenses in chiropractic, such chiropractors having obtained their licenses without having complied with the requirements of the basic science act. In Michigan the circuit court of Wayne County in January 1940 similarly held that the basic science act of that state infringed on no constitutional rights of persons attempting to obtain licenses to treat sick human beings. *George Timpona and Marie Hyland Timpona, his wife, v. Brown et al.* In both cases the state medical associations cooperated and rendered material aid in defending the public welfare against efforts to break down the protection provided by the imposition of the basic science requirement.

Another important case terminated in a trial court in Texas, in which the district court of Travis County, Texas, Fifty-Third Judicial District, upheld the right of the legislature to impose a citizenship requirement on applicants for licenses to practice medicine. *Manuel Garcia-Godoy v. State Board of Medical Examiners*. The importance of this case lies in the fact that it was the first time, as far as the records of the Bureau show, that a citizenship requirement in relation to medical licensure has been squarely before a court and in the further fact that the court bottomed its decision on the ground that the practice of medicine is not a "common occupation" but a profession impressed in many instances with semiofficial duties in connection with governmental birth, sickness and death records, with the execution of certificates of freedom from disease, with the enforcement of state and federal narcotic laws, and with many other duties of similar nature, all of which are imposed on physicians by the government in furtherance of policies adopted by the state for the welfare of the people as a whole. The court thought that a physician who is a citizen would be better able to cooperate with the state in carrying out its policies than a physician of foreign allegiance and training who is unfamiliar with the ideals and institutions of this country. To the conclusion that the court's judgment was predicated for reasons on which the United States Court of Appeals for the District of Columbia upheld the judgment of the lower court that Group Health Association, Inc., of the District of Columbia, was not engaged in the business of insurance. *Jordon v. Group Health Association, a corporation*, 107 F. (2d) 239. The gist of the decision was that the contract between the corporation and its members imposes no legally enforceable obligation on the corporation to furnish relief or service of any kind under any condition and that since the corporation assumes no risk to which a member may be subject the contract is not one of insurance. The court in reaching its conclusion referred to the contract as "unique."

One other decision that calls for special comment was abstracted in *THE JOURNAL*, Sept. 30, 1939. *State v. Karsunky* (Wash.), 84 P. (2d) 390. The case involved the liability of a so-called drugless healer for the death of a diabetic patient owing to the fact that the healer induced the patient to discontinue the use of insulin and to discontinue a regulated diet that had been prescribed by a doctor of medicine. The court said that a person who induces a diabetic patient to discontinue the use of insulin, when the use of that drug is necessary to preserve life, is guilty of manslaughter if the patient dies as a result of such action. In principle, the court thought, such inducement is equivalent to withholding insulin from the diabetic patient by physical force. As long as persons without scientific training and utterly ignorant of the causes, diagnosis and treatment of disease are permitted either by sanction of law or by toleration to assume responsibility for the treatment of sick human beings, tragedies such as the one that occurred in Washington must and will occur all too frequently. Elsewhere in the report of the Board of Trustees will be found reference to the court decisions in the case of the *United States v. The American Medical Association* for alleged violation of the antitrust laws.

FEDERAL INCOME TAXES

The Bureau has continued the practice of preparing for publication in *THE JOURNAL* an annual statement on the federal income tax act to aid physicians in the preparation of the returns required by that act. The statement not only serves individual physicians directly but is used by many of the constituent state medical associations as a basis for similar statements published in state medical journals. Such a statement prepared by the Bureau was published in *THE JOURNAL*, Jan. 20, 1940. The only recent change that has been effected in the federal income tax situation as concerns peculiarly the physician was the enactment of a law by the Seventy-Sixth Congress under which the salaries of physician employees of state and local governments, including of course physician employees, were made subject to the federal income tax law and the salaries of federal employees, including physicians, may be subjected to state income tax acts. Heretofore such salaries have not been so taxable.

FEDERAL LEGISLATION

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JOUR. A. M. A.
MAY 11, 1943

Weekly during the period in which Congress is in session, abstracts of congressional bills of interest to the medical profession are prepared by the Bureau and published in THE JOURNAL. Since the Seventy-Sixth Congress convened to date, March 1, 1940, abstracts of 342 bills have been prepared and published in THE JOURNAL. In addition, special comments are prepared when the importance of a particular proposal justifies such a course.

In the Jan. 13, 1940, issue of THE JOURNAL, under the title "Medical Bills in the Seventy-Sixth Congress," there was published a summary of the federal legislative situation, prepared by the Bureau. In that summary reference was made to the laws of particular medical interest that had been enacted by the Seventy-Sixth Congress prior to the convening of the third session on January 3, to the proposed laws that had been defeated, and to the bills that were then pending. The changes that have since taken place which seem to merit recording are as follows:

The Wagner National Health Bill, S. 1620.—The Senate Committee on Education and Labor concluded hearings on this bill July 13, 1939, and thereafter submitted to the Senate a preliminary report expressing approval of the broad, general objectives of the bill but withholding commitment on its framework and detailed provisions. At the request of the committee, the Bureau prepared an analysis of the bill, which was published in the printed hearings. No further action had been taken on the bill up to the time of the preparation of this report.

President Roosevelt's Hospital Construction Proposal.—Following a White House conference with the committee appointed by the House of Delegates to confer with federal representatives concerning the National Health Program, representatives of hospital associations and certain federal officials, President Roosevelt, on Jan. 30, 1940, transmitted a special message to Congress in which he recommended a federal appropriation of \$7,500,000 to \$10,000,000 to construct "small hospitals in needy areas of the country, especially in rural areas, not now provided with them." Title to the hospitals to be constructed, the President recommended, is to remain in the federal government but the costs of operations are to be assumed locally. "Treatment in such hospital," the President said, "would, of course, be available to men, women and children who literally can afford to contribute little or nothing toward their treatment."

Senator Wagner of New York, on behalf of himself and Senator George of Georgia, introduced a bill to carry into effect the President's recommendations, S. 3230. An identical bill was introduced in the House of Representatives by Congressman Lea of California, H. R. 8240. As this report is being prepared the Senate bill is pending in the Senate Committee on Education and Labor, the House bill in the House Committee on Interstate and Foreign Commerce. A copy of the President's special message, of S. 3230 and an editorial comment on the hospital construction proposal was published in THE JOURNAL Feb. 10, 1940, all of which material has been made available for distribution in reprint form.

Senator Wagner's bill authorizes an appropriation for the fiscal year ending June 30, 1941, of \$10,000,000 and for each fiscal year thereafter such sums as Congress may believe to be necessary to assist states, counties and health or hospital districts "in providing better health and medical services through the provision of needed hospital facilities to serve rural communities and economically depressed areas." A National Advisory Hospital Council, to be composed of leading medical and scientific authorities who are outstanding in matters pertaining to hospitals and public health services, is to be created to advise the Surgeon General of the United States Public Health Service in carrying out the provisions of the act. Hospital projects, with respect to location and operation, must be approved by the Surgeon General. Such hospitals, it is contemplated, will be leased to the applicant for an indefinite period; but, if at any time the maintenance and operation of a hospital by a lessee fails to meet any of the provisions of the act, including presumably any rules that may be promulgated by the Surgeon General, then the lease may be terminated on six months' notice by the Surgeon General. The bill does not disclose the manner

in which a hospital is to be operated after the cancellation of a lease. The term "hospital" is defined in the bill to include the physical facilities not only for the prevention, diagnosis or treatment of disease but for "the protection of the public health" as well.

This bill is indefinite with respect to important details, an indefiniteness that does not seem to be justified by the proposals submitted by President Roosevelt in his special message. It does not, for example, definitely limit the building of hospitals to areas that are financially unable to construct needed hospital facilities. It leaves unanswered the question as to the extent to which such hospitals are to engage in public health activities. It does not, as pointed out, indicate what is to become of a hospital after the lease has been cancelled. These and other obscurities seem to call for clarifying amendments.

Mead Hospital Construction Bill.—On February 6, Senator Mead of New York introduced a bill, S. 3269, being a revision of a bill he had previously introduced, proposing a federal appropriation of \$300,000,000, to be administered by the Administrator of the Federal Works Agency, from which secured loans will be made to any public body and to any organization not operated for profit for the construction, equipment, repair and maintenance for a period not exceeding four years" of hospitals, defined to mean any institutions or facilities for the treatment of illness or disease, including any health, diagnostic or treatment center, station, institution or clinic; and (2) plants and systems for the reduction of pollution in streams and water and sewerage works and systems; and (3) "related facilities." A part of this appropriation, not to exceed \$100,000,000, may be devoted to hospital projects. Loans from this federal money will be repayable within a period not to exceed fifty years and will bear interest at the rate of 2 per cent a year. Hospitals constructed with the money made available by the bill must be turned over to the federal government for operation, at the request of the Surgeon General of the Public Health Service, during a state of war or a national emergency, the hospital being compensated in such an amount as the Congress may determine to be just and reasonable. In submitting the bill to the Senate, Senator Mead emphasized the fact that his bill in no wise conflicted with the Wagner Hospital Construction bill, which position he reemphasized in a radio address given by him over the Mutual Broadcasting System. The bill is pending in the Senate Committee on Banking and Currency. In the House, identical bills have been introduced, H. R. 8288, introduced by Representative Schulte of Indiana, and H. R. 8439, introduced by Representative Havenner of California, both pending in the House Committee on Appropriations, and H. R. 8547, introduced by Representative Starnes of Alabama, pending in the House Committee on Banking and Currency.

Social Security Act Amendments.—The President on Aug. 10, 1939, approved a law that effected numerous changes in the Social Security Act of 1935, many of which concern the physician only so far as he constitutes an integral part of the population in general. The new law did, however, authorize an increase of \$2,020,000 in federal funds for maternal and child health, of \$1,020,000 for services for crippled children and of \$3,000,000 for public health. The old age insurance tax on employees and employers was frozen at 1 per cent for the years 1940, 1941 and 1942, and the benefits provided in the original act were extensively liberalized.

On the opening day of the Seventy-Sixth Congress Representative O'Day of New York proposed by H. R. 101 to strike from the old age and unemployment benefit provisions of the Social Security Act the paragraphs exempting service performed in the employ of corporations organized and operated exclusively for religious, charitable, scientific, literary or educational purposes, or for the prevention of cruelty to children or animals, no part of the net earnings of which inures to the benefit of any private shareholder or individual. This bill was considered by the House Committee on Ways and Means along with numerous other proposals to amend the Social Security Act, but action on it was postponed, it is understood, because of the opposition to it voiced by the churches, the argument being that if the Social Security tax was imposed on the churches it would constitute a heavy burden in view of the fact

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that the tax could not well be passed along. Representative O'Day on Jan. 24, 1940, reintroduced her bill as H. R. 8118, but in such a form as to obviate the opposition of the churches. The revised bill proposes to strike from the Social Security Act the exemption paragraphs referred to in the previous bill and to insert in their places exemptions in favor of services performed in the employ of any church, synagogue or other institution devoted exclusively to services of worship. The bill is pending in the House Committee on Ways and Means.

Food, Drugs and Cosmetics.—The provisions of the new Federal Food, Drug and Cosmetic Act relating to dangerous drugs, dangerous cosmetics and new drugs became effective on the approval date of the act, June 25, 1938. Certain other provisions relating to labeling and to the use of coal-tar dyes in foods, drugs and cosmetics were by the act made effective twelve months after the date of enactment. On June 23, 1939, a new law was approved further extending the effective date of these provisions to Jan. 1, 1940, and directing the Secretary of Agriculture to promulgate regulations further postponing, to July 1, 1940, certain provisions so far as they related to specified types of labeling and containers. On Dec. 2, 1939, the Acting Secretary of Agriculture did promulgate regulations postponing to July 1, 1940, the effective date of the provisions of the act with respect to any type of lithographed labeling which was manufactured prior to Feb. 1, 1939, and to any type of containers bearing labeling which, prior to Feb. 1, 1939, was lithographed, etched, stamped, pressed, printed, fused or blown on or in such containers.

The Lodge Health Insurance Bill, S. 2963.—On Aug. 4, 1939, Senator Lodge of Massachusetts proposed by S. 2963 to add a new title to the Social Security Act providing for a system of health insurance to supply medical services to certain persons registered as unemployed for at least fifteen consecutive weeks at a public employment office or other agency approved by the Social Security Board. The bill proposes that every individual who qualifies under its provisions shall be entitled in any year, on the approval of the doctor or hospital furnishing him "to have forwarded to the doctor or hospital payment, for such services a sum equal to all or to any part of the health-insurance benefit to which such individual is entitled for such year," such benefits to be equal to one fifth of one per cent of such individual's total wages, except that such benefits shall not be in excess of \$25 for one year and the total of all such benefits shall not be in excess of \$100. The bill is pending in the Senate Committee on Finance.

Army Medical Library and Museum Building.—The Seventy-Fifth Congress authorized the construction in the District of Columbia of a new building for the Army Medical Library and Museum. While this law carried an authorization of \$3,750,000 for the construction project, no appropriation was thereafter made so that the authorized sum could be made available. President Roosevelt, in submitting to the Seventy-Sixth Congress the budget for the fiscal year 1941, included an item of \$600,000 for the acquisition of a site for the new building and for preliminary expenditures in connection with the contemplated construction of a new home for the library. The budget item contemplates that the building will be constructed on East Capitol Street, in Washington, adjacent to the Congressional Library Group. The House Committee on Appropriations must include in an appropriation bill the amount recommended and approved by the President before the sum will be available. The committee named has been importuned to act favorably and expeditiously in this matter. Further delay with respect to the construction of the building will only accentuate the dangers inherent in the use of the present quarters, which are not fire-proof and which are wholly inadequate to house in an accessible manner the vast collection of invaluable medical literature that comprises the Library.

Researches with Respect to the Common Cold, "Flu" and Pneumonia.—Senator Pepper of Florida introduced on Jan. 16, 1940, a bill, S. 3125, proposing an appropriation of \$100,000 for use by the United States Public Health Service in conducting researches as to the cause, diagnosis and treatment of the common cold, "flu" and pneumonia, with a view to the develop-

ment and prompt widespread use of the most effective methods of prevention, diagnosis and treatment of such diseases. The bill is pending in the Senate Committee on Finance.

Grants-in-Aid to Prevent Stream Pollution.—A bill introduced by Senator Barkley of Kentucky, S. 685, proposed to create in the United States Public Health Service a bureau of water pollution control and to authorize federal grants-in-aid to assist states, municipalities and public bodies to construct treatment works to prevent pollution of navigable water. The bill passed the Senate, May 1, 1939. In the House the bill was amended before its passage March 1, 1940, by the elimination from it of the provision relating to grants-in-aid and by the substitution therefor of authorization whereby the Reconstruction Finance Corporation may make loans to finance the construction of such treatment works. This amendment, it was stated on the floor of the House, was made at the suggestion of the President, who was reported to have said that "he did not want grants in the bill because it would be a direct obligation against the government" and would therefore further unbalance the budget. The Association has long contended that the principle underlying federal subsidies for health projects is fundamentally unsound.

Control of Industrial Diseases by Labor Department.—Senator Murray of Montana on Feb. 29, 1940, introduced a bill, S. 3461, proposing federal funds for allotment by the United States Department of Labor to the several states to aid them in providing, by promoting the prevention and control of industrial conditions hazardous to the health of workers, more adequate protection to workers and their families from economic losses caused by disability or death resulting from occupational diseases. In order to obtain any of this federal money a state must submit plans for approval to the Secretary of Labor. A plan may not be approved unless it provides, among other things, that it will be administered by or under the direction of the state labor department or other agency charged with the administration of the general labor laws of the state. The bill is pending in the Senate Committee on Education and Labor. A companion bill was introduced in the House March 1 by Representative Keller of Illinois, H. R. 8730, which is pending in the House Committee on Labor.

Regulation of Seals of Approval.—Representative Lemke of North Dakota introduced in the House on Feb. 23, 1940, H. R. 8625 by which he proposes that it shall be unlawful for any person, association, organization or company to use, sell, buy or exchange any seal, stamp or certificate of another person, association, organization or company denoting or implying equality or superiority in purity, quality, usefulness or effectiveness of any drug, food, cosmetic, therapeutic lotion, therapeutic device or diagnostic or surgical assists in comparison and competition with other products of like kind or similar nature unless authorized by the Federal Trade Commission. The bill is pending in the House Committee on Interstate and Foreign Commerce.

STATE LEGISLATION

The Bureau subscribes for a legislative reporting service that keeps it informed on state legislation in the field of health. Information that the Bureau receives through this reporting service, when it seems of importance, is transmitted to the president, the secretary and the chairman of the legislative committee of the state medical society of the state concerned. Abstracts of bills of interest to the profession are prepared for publication in THE JOURNAL so that physicians may have timely information concerning legislative developments in their own states. From time to time the Bureau, at the request of state medical associations, prepares detailed analyses of pending proposals.

At the close of each calendar year the Bureau prepares for publication in THE JOURNAL a summary of all matters considered by the state legislatures in that year which are of particular interest to the medical profession. The bill has been prepared for 1939, the first instalment of which appeared in THE JOURNAL for March 9, 1940.

In a number of respects and particularly from the standpoint of medicine, 1939 was a significant year legislatively. The number and variety of legislative proposals the enactment of which would have had or do have a definite effect on the practice of medicine far surpassed those considered and acted on in any of the previous thirteen years during which the Bureau

has made a serious effort to study the state legislative scene. Reference may be briefly made to some of the more important laws enacted by the several states.

Medical and Hospital Service Plans.—Possibly prophetic of many other similar laws to come was the enactment in Connecticut, Michigan, New York, Pennsylvania and Vermont of laws authorizing the formation of nonprofit corporations to operate medical service plans on a prepayment basis. Generally these plans contemplate that the subscriber shall have available the services of a physician of his own choice and that the corporation will pay the bills incurred directly to the selected physician. In Missouri a law was enacted permitting fraternal benefit societies to operate plans whereby medical and hospital services may be rendered to members and their dependents. In Arkansas agricultural corporations were authorized to engage in any activity in connection with "the furnishing of medical, dental, health, hospitalization, nursing or any related services, or medicines or medical supplies to its members and/or their families."

The number of states having laws authorizing the formation of nonprofit corporations to provide hospital care to their members on a prepayment basis was enlarged in 1939 by the addition of Alabama, Connecticut, Florida, Iowa, Maine, Michigan, New Hampshire, New Mexico, Ohio, Rhode Island, South Carolina, Texas, Vermont and Wisconsin.

Premarital and Antepartum Examinations.—Laws requiring as a condition precedent to the issuance of a license to marry that each party to the proposed marriage present a physician's certificate of freedom from stated venereal diseases in an infectious state were enacted in California, Colorado, Indiana, North Carolina, North Dakota, Pennsylvania, South Dakota, Tennessee and West Virginia. Existing laws of this type in Illinois, Michigan and New York were so amended as to make them more workable.

Under laws enacted in California, Colorado, Delaware, Illinois, Indiana, Iowa, Maine, Massachusetts, Michigan, North Carolina, Oklahoma, Pennsylvania, South Dakota and Washington, a physician attending a pregnant woman or attending at delivery must obtain a specimen of her blood and must submit the specimen to an approved laboratory for a serologic test for syphilis.

Dangerous Drugs.—Particularly noteworthy were laws enacted in twelve states restricting the sale and distribution of certain barbiturates to sale or distribution on the prescription of a licensed physician, dentist or veterinarian. Similar laws with respect to sulfanilamide were enacted in eight states, to dinitrophenol in four states and to cinchophen in six states. California enacted laws prohibiting the sale or distribution for human consumption of dinitrophenol and of diphenylamine when used for eyelash or eyebrow dyes.

Healing Arts.—Basic science laws were enacted in Florida and South Dakota which will require all applicants for licenses to practice any form of the healing art in those states, before being permitted to be examined and licensed by their respective professional boards, to demonstrate to a separate board of examiners a comprehensive knowledge of anatomy, chemistry, pathology, physiology and bacteriology.

Laws limiting medical licensure to citizens of the United States or to persons who have declared their intention of becoming such citizens were enacted in eight states.

The New Jersey medical practice act with amendments adopted in 1939 now contemplates that after 1944 only unrestricted licenses to practice medicine and surgery will be issued.

Extensive amendments to the laws regulating the practice of osteopathy were adopted in Tennessee and New York. The Tennessee law grants osteopaths extensive rights in the field of medicine and surgery. The New York law will permit osteopaths to use instruments for minor surgical procedures and to use anesthetics, antiseptics, narcotics and biologic products if they satisfy the board of regents that they are qualified to do so.

Laws were enacted in South Dakota and Tennessee which provide, in effect, that in expending public funds for medical care no distinction is to be drawn between the legally authorized branches of healing. In South Dakota the law will permit each relief client to select a practitioner of his choice, regardless of school of practice.

COOPERATION APPRECIATED

The Board of Trustees, on behalf of the Bureau of Legal Medicine and Legislation, again expresses its appreciation for the fine cooperation the Bureau has received during the year from constituent and component associations and from individual physicians. Without that cooperation, the value of the service that the Bureau renders would be greatly lessened.

Summary

On Jan. 1, 1940, the retirement of Dr. William C. Woodward, who for eighteen years directed the activities of the Bureau with distinction, became effective.

Court Decisions of Medicolegal Interest.—During the year several important court decisions of interest to physicians were rendered. Basic science acts were upheld in Arkansas and Michigan. A Texas court sustained the right of a state legislature to limit medical licensure to citizens. The contract between Group Health Association, Inc., District of Columbia, and its members was held to be "unique" but not insurance. In the state of Washington a so-called drugless healer was branded as a killer who caused the death of a diabetic patient by inducing him to discontinue the use of insulin.

Federal Income Taxes.—Salaries of physicians employed by states or political subdivisions are now taxable under the federal income tax act, and state income taxes may be imposed on physicians employed by the federal government.

Federal Legislation.—The Senate Committee on Education and Labor submitted a preliminary report on the Wagner National Health Bill approving its general objectives but withholding commitment on its details.

President Roosevelt in a special message to Congress recommended a hospital construction program, and bills have been introduced to effectuate that program. Other bills have been introduced proposing federal loans for the building of hospitals and of sewerage treatment works.

The Social Security Act was amended to increase federal appropriations for maternal and child health, for services for crippled children and for public health. A pending proposal would bring within the coverage of that act organizations operated exclusively for charitable, scientific, literary or educational purposes, but not for religious purposes.

The effective date of certain provisions of the Federal Food, Drug and Cosmetic Act has been postponed to June 30, 1940.

Under the provisions of the Lodge Health Insurance Bill, medical services rendered to qualified unemployed individuals would be paid for from federal funds, subject to prescribed limitations as to the amount thus to be paid.

President Roosevelt included in his budget message an item for the acquisition of a site on which to construct a new building for the Army Medical Library.

Researches by the United States Public Health Service as to the cause, diagnosis and treatment of the common cold, influenza and pneumonia is contemplated by a pending bill.

The Barkley Stream Pollution Bill was amended in the House to eliminate the grants-in-aid provisions and to substitute therefor provisions authorizing loans by the Reconstruction Finance Corporation for the construction of sewerage treatment works, the amendment, it is reported, being made at the request of the President.

Pending legislation proposes that supervision over the control of industrial health shall devolve on the United States Department of Labor.

The use of seals of approval without the authorization of the Federal Trade Commission will be prohibited if a pending bill is enacted.

State Legislation.—Through a legislative reporting service prompt information is obtained with respect to state legislation relating to the medical profession,

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which information is passed on if it seems of importance to state medical associations. The year 1939 was a prolific legislative year, and many proposals were considered of interest to the medical profession.

Five states enacted laws authorizing the formation of nonprofit corporations to operate medical service plans, and in fourteen states the organization of similar corporations was authorized to promote hospitalization plans.

Freedom from a venereal disease in an infectious stage as a condition to the issuance of marriage licenses is the objective sought by laws enacted in nine states during the year. In fourteen states antepartum examinations were required of pregnant women to determine the presence of syphilis.

The sale of certain barbiturates was limited by laws enacted in twelve states to sales on the prescription of a licensed physician, dentist or veterinarian. Eight states similarly restricted the sale of sulfanilamide, four the sale of dinitrophenol and six the sale of cinchophen.

Basic science laws were limited to citizens or eight states medical licensure was limited to citizens or to applicants who have obtained first papers. In two states, osteopaths obtained enlarged privileges.

Bureau of Medical Economics

The House of Delegates gave careful consideration to the National Health Program at its special session held in Chicago in September 1938. At this session a committee of physicians was named to confer and consult with proper federal representatives relative to the National Health Program. The Wagner National Health Bill, drafted to implement the National Health Program, was carefully considered at the annual session of the House of Delegates held in St. Louis in 1939. A committee of physicians was selected to present the point of view of the American Medical Association at the hearings on the Wagner National Health Bill on May 25 and 26, 1939.

The Bureau of Medical Economics assisted in the preparation of factual data to be used by the special committee of physicians in support of the position of the proposed Wagner National Health Bill in its advocacy of principles which it deemed to be in the interest of good public policy and the preservation and advancement of the independent private practice of medicine.

In support of the principle that the medical, health, hospital and allied activities of the federal government should be coordinated and administered by a single agency, the Bureau assembled from the Budget of the United States Government figures to show the federal expenditures for these activities. This study showed that the actual expenditures of the federal government for medical, health, hospital and allied activities for 1937 were about 7.6 per cent less than the combined budgets of the Departments of Commerce, Justice, Labor and State, minus the estimated appropriations for medical, health, hospital and allied activities of these departments, by 84.87 per cent.

The total appropriations estimated to be necessary for the medical, health, hospital and allied activities of the United States government for the fiscal year ending June 30, 1938, the estimated budgets of the Departments of Commerce, Justice, Labor and State, less the amounts estimated to be needed for medical, health, hospital and allied activities of these departments, exceeded the combined budgets of the Departments of Commerce, Justice, Labor and State, less the amounts estimated to be required for the medical and allied activities of these departments.

Thus it should be clear that, measured by the amounts designated in the budgets of the United States government as appropriated for these activities, an agency for the administration of

all the medical, health, hospital and allied activities of the United States government, except the medical departments of the Army and the Navy, would equal or exceed in appropriation importance the combined Departments of Commerce, Justice, Labor and State.

This complete report appears on pages 475 to 491 of part 2 of the printed Hearings on S. 1620, the Wagner National Health Association for the use of the Committee on Education and Labor of the United States Senate.

At the request of the subcommittee of the Senate Committee on Education and Labor, the Bureau also prepared a compilation of "Hospital Rates for Ward, Semi-Private and Private Room Accommodations Arranged According to Counties and States."

These data were compiled from the county summary sheets returned to the Bureau by the county medical societies that participated in the American Medical Association Study of Medical Care in the United States. This compilation appears on pages 517 to 523 of part 2 of the printed Hearings on S. 1620. The county medical societies that included these hospital rates in their reports thus materially assisted in providing information desired by a Senate subcommittee.

The Bureau also prepared for the use of the subcommittee of the Senate Committee on Education and Labor "A Criticism of the National Health Survey." This criticism appears on pages 468 to 475 of part 2 of the printed Hearings on S. 1620.

PUBLICATIONS OF THE BUREAU

"Factual Data on Medical Economics." This publication contains statistical and graphic presentations of medical facilities, hospitals and vital statistics, including general mortality, mortality from specific causes and maternal and infant deaths. Comparative tables and charts show revenue and expenditures and duration of the German system of sickness insurance. One table shows the principal provisions of the leading national sickness insurance systems. The demand for this publication has already nearly exhausted the first edition, and work on a revision bringing the statistical material up to date is now under way.

"Organized Payments for Medical Services." There has been a large demand for descriptive material dealing with organizations which arrange various types of payments for medical services.

The introductory chapter points out that the present accelerated interest and activities in organized payments for medical care are the culmination of an evolutionary development and represent no sudden change of policy on the part of organized medicine. State and county medical society plans for the care of the indigent during the last ten years are described with samples of contracts and details of operation.

The third chapter, "Effects of Social Security Legislation," shows how medical societies have cooperated with other agencies and in many cases have furnished the form of organization through which such legislation was made effective. The various types of plans developed by the Farm Security Administration are described with copies of contracts or agreements with state and county medical societies. The results of experiments to date are summarized and evaluated.

Chapter 5 is an analysis and discussion of "Medical Care Arrangements Organized by Medical Societies." A wide variety of these arrangements, including postpayment, prepayment, unit service, cash indemnity and modified cash and unit plans as well as credit and collection bureaus, is included. Examples of medical service plans in industry, of medical and hospital benefit organizations and of union and fraternal arrangements are described. The attitude of the medical profession with regard to all these is explained and the respective merits of cash versus service insurance in the field of medicine as well as the special legislation which has been found necessary in many states are discussed. Types of organization and methods of operation of group hospitalization and its relation to state and county medical societies are explained. The activities of insurance companies in hospital insurance are treated.

The final chapter deals with "Planning an Organization of Medical Service" and seeks to supply the information needed by any organization contemplating some type of medical service plan.

"Handbook of Sickness Insurance, State Medicine and the Cost of Medical Care." This publication has been completely revised. Much of the material in previous editions which had become obsolete has been omitted and up to date material has been substituted. Publications on both sides of medical economic questions are abstracted at sufficient length to convey the essentials in the original material. The subjects covered are the incidence of illness, cost of medical care, sickness insurance, state medicine and other methods of medical care. A bibliography of some of the significant works dealing with these subjects is added.

"Index and Digest." The "Index and Digest of Official Actions of the American Medical Association" has been brought up to date with a supplement covering the proceedings of the years 1937 to 1939 inclusive. The "Digest" section includes verbatim reports from the official proceedings of the meetings of the House of Delegates covering those actions to which reference is most frequently made. The "Index and Digest" began with the year 1904 and now constitutes a comprehensive reference work on thirty-six years of activities of the governing body of the American Medical Association.

"Estimated Costs of Medical Care." Increased interest in prepayment plans for medical care has brought many requests for information on medical costs. The Bureau of Medical Economics has assembled and analyzed the available material on medical costs in a mimeographed compilation "Estimated Costs of Medical Care," in which the statistics are broken down to show detailed probable costs of various types of medical, surgical and hospital services in an average population. Sources of the material used are given for each tabulation.

"Medical Care in the United States—Demand and Supply." The state and county medical society reports for the study undertaken by the American Medical Association to determine the need and supply of medical care have been assembled and published. A preliminary report of this study was distributed to the members of the House of Delegates at the annual session of the American Medical Association held at St. Louis in 1939.

This report represents the most extensive study of this subject ever undertaken. The cooperation of 623 component county medical societies, which include 862 counties in thirty-eight states, made it possible to secure information covering a total population of 49,278,083. Only one form out of the nine used in the study was sent to physicians and dentists. The other eight forms were devised to collect information pertaining to hospitalization, health administration, nursing, pharmacy, school, college and university health services, the medical phase of welfare and relief programs and the medical services and facilities provided or arranged for by a large number of fraternal, social, industrial and community organizations. The information desired on these several phases of the supply and demand for medical care was furnished by the individuals who by reason of their experience or administrative positions were in the position to have important information concerning the extent to which needed and desired medical care is supplied in their respective communities.

It is significant that there was but little disagreement between these different sources of information in any one locality. All sources of information agreed closely on the extent of unsatisfied need for medical care and they also agreed that such unmet needs were almost always exceptional and local and confined to specific conditions. Wherever the opinion was expressed that the medical care which depended on governmental effort was unsatisfactory, especially with regard to the indigent, there was, in the majority of cases, agreement that the arrangements made by relief authorities were inadequate. Consequently a heavy burden is still borne by the physicians in private practice. About 17,000 physicians reported giving free medical care in their offices or in the patients' homes to almost 3,000,000 persons during 1937, and these physicians also contributed free care in hospitals and other institutions.

This survey has not only aroused increased interest and furnished specific information as to the demand and supply of medical care throughout a majority of states but it has also served as an incentive to the development of programs for improvement of medical care in many localities.

Partly as a check on the previously mentioned forms, an additional form, 1F, was filled in by 45,595 physicians in 461

counties in thirty-two states and the territory of Hawaii. This form asked for actual daily records of free services rendered during three different periods of the year so arranged as to give samples at times of greatest and least seasonal prevalence of disease. The data recorded on these forms correspond closely with the information given on the other form (form 1) sent to physicians concerning the amount of free service. Many of the state and county medical societies devoted considerable time and personal service in collecting the information requested and, in some cases, published the results of state and local surveys which form extremely valuable studies of local conditions.

EXPERIMENTAL MEDICAL SERVICE PLANS

During the past seven years, many of the state and county medical societies have carried on extensive experiments in search of acceptable methods of organizing payments for medical service and adjusting the burden of medical cost to the ability to pay of varying economic classes. Never have so many, so varied or so significant projects pertaining to the distribution of medical care been developed and carried on in any other country. When, several years ago, the burden of medical care for the indigent disrupted the systems of county and township physicians, drained the resources of philanthropic organizations and became too heavy for physicians in private practice to bear, the various state and county medical societies developed almost the only equitable plans for efficiently distributing such resources as were available to provide medical care for the indigent.

During the period 1932 to 1938, between 200 and 300 county medical societies entered into agreements with relief authorities to provide medical service for the indigent. These were so organized as to protect the interests of the patients and the public in the free choice of physician and the economical administration of the always insufficient funds. A number of county medical societies have also experimented with medical service bureaus for those with low incomes. Some of these bureaus are still in operation and have been helpful to many persons in this low income group in enabling them to meet the costs of needed medical care. All these temporary plans and all those which are now in operation should be considered frankly as experiments to be expanded, restricted, altered or abolished as they prove their value in protecting the health of those served. If they are not found appropriate or desirable, they should be abandoned or modified. The medical societies which abandon such experiments stand to lose the time and money expended, but under such circumstances no political, financial or occupational vested interests are created and left behind to hamper further experiments or developments.

Out of the extensive experience with county medical society plans, a number of state medical societies are now undertaking experimental medical service plans on a statewide scale. At present, at least fourteen state medical societies have such plans in various stages of development. These states include California, Colorado, Connecticut, the District of Columbia, Massachusetts, Michigan, Missouri, New Jersey, New York, Oregon, Pennsylvania, Utah, Vermont and Washington.

In some states such arrangements have progressed little beyond endorsement by the house of delegates of the state medical society and the appointment of a committee to prepare a plan. In Connecticut, Michigan, New York, Pennsylvania and Vermont, special enabling legislation has been enacted to establish the legal basis of the plans in these states. Massachusetts is now seeking permissive legislation to form a nonprofit corporation to arrange for medical care on a cash indemnity basis. The legislature in Vermont has passed an enabling act for nonprofit medical care organizations, but as yet no such organization has been formed although plans are being considered. Several of the other state medical societies have obtained opinions from their respective insurance commissioners or other state authorities to the effect that their proposed plans are permissible under existing statutes.

In California, New York, the District of Columbia and Michigan, service under such plans is already being offered to the public or will be within the immediate future.

The Missouri Plan consists of three bureaus: 1. Medical Dental Service Bureau: a postpayment arrangement for medical, surgical and dental bills. 2. Group Hospitalization: a prepay-

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Principles adopted by the House of Delegates in 1934 for the guidance of medical societies in the organization and conduct of such activities.

GROUP HOSPITALIZATION

There has been a continued growth of nonprofit group hospitalization during 1939. At the present time the Bureau has records of 108 such groups in operation in thirty-five states and the District of Columbia, with an estimated enrolment of over 5 million persons. Of these, fifty-six are organized and operated according to the principles established by the Commission on Hospital Service of the American Hospital Association and are permitted to exhibit the blue cross. Ten of these plans are state-wide in scope, such as the Michigan hospitalization plan, and have the approval in principle of the state medical societies in their respective states. A majority have some degree of approval and active cooperation of the local county medical societies.

The House of Delegates of the American Medical Association adopted at its annual session in 1937 ten principles for the guidance of physicians and hospital administrators in the organization and operation of group hospitalization plans. These principles were revised and reaffirmed by the House of Delegates at the regular session in 1938. At the special session of the House of Delegates in September 1938 approval was given to the principle of hospital service insurance, provided these plans confined themselves to the provision of hospital facilities and did not include any type of medical care. No approval, endorsement or recommendation has been given to individual group hospitalization plans by the American Medical Association, although a few such plans may conform to the principles adopted by the House of Delegates.

In Michigan and California, where prepayment plans for medical service for the low income group have been developed by the state medical associations, the contracts offered by the Michigan Medical Service and the California Physicians' Service and the group hospitalization plans in these states may be mutually supplementary. A subscriber to one organization is encouraged to subscribe to the other and consequently obtain full coverage for hospital, surgical and medical services. Since practically all medical services are provided in the medical service agreements, there is no need for hospital service contracts to include any medical service.

The need for greater attention to the limits within which group hospitalization plans should be organized and operated has been more clearly indicated in the last year by changes in organization and administration made by some hospital service associations. At a meeting of the board of directors of the Associated Hospital Service of New York held in October 1939 the board voted to increase its membership to include an additional five physicians. Earlier the Associated Hospital Service of New York had revised its subscribers' contracts to embody several new limitations and some liberalization of benefits. About 57,000 contracts were terminated. These subscribers can reenroll only through organized groups. The Associated Hospital Service stated that a study of its experience indicated that a proper distribution of risk had not been maintained in the individual enrolment of subscribers.

The Associated Hospital Service of New York received permission from the state department of social welfare to reduce by 25 per cent its payments to member hospitals for services rendered by them to subscribers during the months of April, May and June, and later this was extended to cover July, August and September. It was stated that it was hoped to return to the original per diem payment by Jan. 1, 1940. These adjustments which have been made in the Hospital Service Plan demonstrate the experimental nature of such plans. Further experience may bring about additional changes that will contribute to the establishment and operation of nonprofit voluntary group hospitalization plans.

There has been increased inclination on the part of several group hospital service corporations to include ward service in their prepayment plans. The Cleveland Hospital Service Association, which has since its organization in 1934 offered ward service at 60 cents a month and a semiprivate room at 75 cents a

ment plan for limited hospital care. 3. Central Admitting Bureau: a plan by which the low income and indigent patients will be taken care of by the medical profession in cooperation with relief authorities.

There is a wide variation among these plans such as must accompany the experimental stage in the establishment of any social institution in a nation with such widely different characteristics as the several parts of the United States. Massachusetts, New York and Utah plans provide for payment of benefits in the form of cash indemnity rather than directly in service. Most of the state plans undertake to arrange for medical care under close medical and insurance supervision. There is some diversity in the income classes included, although the majority set the upper limit at around \$2,000 to \$2,500 for families, with a lower income limit for individuals. Missouri classifies premiums according to three classes of incomes and according to certain variations as to the number of dependents within each income class.

In the proposed and operating medical care arrangements, prepayments vary from \$1.50 to \$2.50 a month for individuals, with a lower additional amount for dependents in the same family and with a maximum of about \$3.50 to \$5.00 for large families. Much of this variation is due to provisions which limit the services to the nature and amount that it is believed can be furnished at the rates charged. The services provided in these plans usually include home, office and hospital calls, surgical services, obstetrics included after both husband and wife have been subscribers for twelve months, x-ray and laboratory services, anesthetics and consultant services. Treatment for mental disease, alcoholism, drug addiction, tuberculosis, venereal diseases and injuries which are covered by the workmen's compensation acts is excluded.

Some plans require that the cost of certain services received by members in any one year must be paid by the subscribers before the benefits provided will become available.

The California Physicians' Service plan provides that the subscribers shall pay for the first two calls in any one illness, the Mutual Health Service of the District of Columbia requires payment of the first \$6, the Michigan Medical Service provides payment of the first \$5, and the New York plans require payment for the first \$10 expense in any one given year. Some state plans also place a limit on the value of the service that is given in any single year. This is usually placed sufficiently high to cover all but the most exceptional illnesses and even in these instances the total amount allowed makes a substantial contribution even though the total cost of the illnesses may not be completely covered. In Michigan the maximum coverage for an individual subscriber in any one subscription year is \$325, with the family limit set at \$875.

All these plans vest control in the medical profession, although several provide for lay representation in their governing bodies. In all cases, arrangements are made to provide that medical standards shall be under professional control. The state medical societies have themselves provided, through appropriations from their funds and the gratuitous services of organization, committees, for the preliminary expenses of organization.

These state and county medical societies represent an effort on the part of the organized medical profession to make available the medical care which subscribers may need and desire at rates they can afford to pay. In some areas there is apparently little demand for medical services on a group basis.

The information gained from these experiments and obtainable from statistical studies of morbidity and the costs of medical care is still insufficient to afford dependable actuarial figures on which prepayment arrangements for the distribution of medical care can be organized and conducted with positive assurance of success. One reason for this uncertainty is the failure of most previous prepayment plans and especially systems of compulsory sickness insurance to place such safeguards around the quality of the services provided as to insure the maintenance of high standards of medical care. Neither has any way yet been found to predict with any reasonable accuracy the amount of service that will be demanded by subscribers to these plans. It is now too early to evaluate these developments in every detail. As experience is gained it may be desirable to add to the Ten

month, had as of Jan. 31, 1940, 40,631 ward contracts and 114,439 semiprivate room contracts. The Michigan Society for Group Hospitalization, organized on a statewide basis in 1938, also offers a ward service contract for 60 cents a month and a semiprivate room contract at 75 cents a month.

The inclusion in group hospitalization plans of ward services at lower rates creates new problems with regard to the medical services required by these ward patient subscribers. A great deal depends on the definition of ward service used in these plans. The provisions in the nine hospital service plans which offer ward service contracts differ from those which offer semiprivate room service chiefly in the rates and the accommodations the subscriber may receive while in a hospital. This newer development on the part of group hospitalization organizations represents a further deviation from the principles pertaining to group hospitalization adopted by the House of Delegates and should be given serious consideration as a possible move on the part of the group hospitalization organizations to provide their subscribers with general medical services.

COMMERCIAL INSURANCE COMPANIES

There has been a gradual increase in recent years in the development of group insurance offered by established commercial insurance companies. A number of these insurance companies offer either a complete or a limited insurance program to employers for their employees, or directly to employed groups. A complete group insurance program may include life, accident and health, accidental death and dismemberment, hospitalization and surgical expenses, and in some cases medical expenses; a limited program may include any combination of the different types of group coverage. The insurance companies which offer group insurance are prepared to develop a plan to fit the demands of widely differing groups. The group policies offered by the more thoroughly established stock or mutual insurance companies are cash contracts which provide that the benefits are payable directly to the insured.

The hospital expense policies offered by insurance companies may provide thirty-one or seventy or more days of hospital care for any one disability during an insurance year and the premium rates are computed on a basic rate per dollar of daily benefit. The basic rate varies according to the sex, age and race of the group to be covered. The hospital expense policy also provides cash reimbursement for diagnostic laboratory services and the use of the operating room up to maximum of five times the daily benefit. In most states there is no upper age limit for group hospital expense insurance offered by insurance companies. The group must consist of at least fifty persons, in which case all must participate, but in groups of more than fifty at least 75 per cent of the employees must participate.

Surgical benefits are usually written only in connection with hospital expense insurance. Hospital and surgical benefits are payable only if the person is confined in a legally constituted hospital under the care of a licensed physician. Benefits are not provided for injuries or illnesses for which medical care is provided in workmen's compensation laws.

Accident and health insurance benefits offered by the legal reserve insurance companies may vary considerably, although the basic rate for the first year is identical for all conference companies. The group policies usually provide thirteen weeks of benefit for any one disability. The individual monthly premiums are based on weekly pay and are loaded according to the percentage of females in the group. The weekly benefits that will be provided are usually graduated according to the weekly or monthly pay of the individuals in the insured group. Benefits are paid in cash directly to the insured.

Newly organized mutual insurance companies or benefit associations sometimes attempt to enter the field of accident and health or hospitalization insurance by a low rate accident and health or hospitalization contract which provides that benefits will be paid in services or that the charges for medical services will be paid directly to physicians or hospitals. These contracts are usually written in such a manner that the insurance company or the benefit association will control the type and amount of service the policyholder may receive. Such control is necessary from the financial standpoint of the insurance company since the benefits are not usually completely specified in the

contract. Sound actuarial principles require that premium rates be sufficient to cover the benefits offered; but, if the benefits are not definitely stated, some control must be maintained over the service provided.

Assessment insurance companies in this field attempt to meet this same problem through an assessment provision which enables them to collect additional premiums if the original rates are not high enough to cover the expenses and benefits.

Group accident and health and group hospitalization insurance, whether issued by newly organized nonprofit organizations or by established commercial insurance companies, offer another means by which persons in employed groups who desire, and feel able to afford such protection, can secure it voluntarily. The attitude of the medical profession toward methods of arranging for payment of medical service is clearly and concisely stated in the following paragraph, which is part of a special report adopted by the House of Delegates of the American Medical Association at its regular meeting in 1935:

There is nothing inherently good or bad, from a medical point of view, in different methods of collection. Insurance, taxation, budgeting, advance financing and all other methods are nothing more than tools with which to conduct an economic transaction. They remain nothing more than this and can be discussed impartially if they are kept strictly within the economic sphere. The problem is to select the best method for every purpose. The chief thing to keep in mind is that all forms of collection should be isolated from any control of service and be kept exclusively in the economic field.

HOSPITAL AND MEDICAL EXPENSE INSURANCE FOR INDIVIDUALS

In addition to the legal reserve companies which offer group hospital and surgical expense insurance policies, there are a number of well established insurance companies which offer hospital and medical expense insurance to individuals or families not enrolled in groups. These policies provide benefits in the form of reimbursement for designated medical services and hospital care. Some of the companies also provide surgical contracts which provide cash reimbursements for specified surgical services. The rates for the hospital and surgical benefits contracts sold to individuals or families who do not enroll as members of a group are considerably higher than the group contract rates, depending on the benefits desired. This type of policy meets at least to some extent the needs of those persons who are not eligible under group coverage.

Already some competition has developed between commercial insurance companies which offer group insurance contracts and newly formed nonprofit organizations which offer contracts for either medical services or group hospitalization. At present the field seems to be sufficiently large for both types of organizations, but it will require time and careful study of the progress methods of administration and experience of each type of coverage to determine which will ultimately be of the greatest service to the people.

It must be remembered in connection with these newer insurance arrangements that they are voluntary methods of arranging in advance for financial transactions that may be necessary in the lives of very many persons. Every effort should be made to gather accurate and reliable information on this voluntary movement, looking toward such improvements as experience indicates are necessary in order that a sound pattern of medical and hospital care may be developed in which quality of service will be maintained according to professional standards. These arrangements, however, cannot supplant or replace private medical care.

PROFESSIONALLY CONTROLLED CREDIT AND COLLECTION AGENCIES

Collecting delinquent medical accounts is an important problem in the practice of the majority of physicians. The procedure followed by many commercial credit and collection agencies has proved unsatisfactory to physicians in so many instances that the physicians in many localities have established their own credit and collection agencies or, more frequently, have established effective supervision of the procedure followed by a privately owned agency which collects their accounts.

In 1938 the Bureau published a report, "Collecting Medical Fees," which outlined and discussed the various systems used by commercial collection agencies. This report carefully described some of the methods that might be useful to physi-

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cians in determining the value and reliability of the services offered by collection agencies and gave particular emphasis to practices which tend to defraud the physician or which allow the collection agency to employ undesirable procedures in dealing with patients.

During 1938, 460 copies of the report "Collecting Medical Fees" were distributed to medical societies, physicians' collection agencies, libraries and others interested in the collection of retail medical accounts. In the past year 420 copies were distributed, making a total of 880 copies sent out since this report was published in serial form in THE JOURNAL in the early part of 1938.

Based on the data collected in 1937 and 1938 for the report "Collecting Medical Fees," thirty-three professionally controlled credit and collection bureaus were in operation at the beginning of 1938. The report "Collecting Medical Fees" contained a general description of the organization and operation of the professionally controlled bureaus, and in addition a detailed classification according to the method by which the medical profession established control over collection methods employed in these bureaus. The report further discussed these professionally controlled bureaus with regard to finances, other services offered and the experience of both the physicians and the patients in their relations with these bureaus. One of the objectives of the professionally controlled collection bureaus appears to be the development of collection methods that are fair to both the physician and the patient.

During the past year the Bureau of Medical Economics has attempted to bring its records on the number and operation of professionally controlled collection bureaus up to date through correspondence with all the bureaus on which a name record has been obtained through such sources as state and county medical societies or from medical journals and bulletins. At the present time information has been collected from sixty-three professionally controlled bureaus. Of this total, which includes the thirty-three in operation in 1938, ten have been discontinued. The remaining fifty-three may be classified as to form of organization into the three broad classifications which were established in the report "Collecting Medical Fees":

1. The county medical society directly establishes and operates the bureau. The board of directors is elected by and is representative of the county medical society.

According to the information obtained in 1938 there were fourteen bureaus of this type. Available records indicate that in 1939 there were fifteen bureaus of this type in operation.

2. Physicians who are members of the county medical society organize a bureau and elect the board of directors. The county medical society may also appoint a committee to supervise the activities of the bureau and act as arbitrator between physicians and the bureau.

According to the information obtained in 1938 there were fourteen bureaus of this type. Available records indicate that in 1939 there were twenty-seven bureaus of this type in operation in 1939.

3. The county medical society appoints a committee to act in an advisory capacity with the governing body of a privately organized bureau.

The information obtained in 1938 indicates that there were five bureaus of this type. Available records indicate also that there were eleven bureaus of this type in operation in 1939.

Practically all the professionally controlled collection bureaus have a credit rating service as well as a collection service. In addition to these functions a bureau sometimes offers bookkeeping services. The bureaus may also cooperate with physicians and patients in working out installment payment plans, according to the patient's ability to pay. In such cases the bureau may provide the physician with pertinent data on the patient's financial status, so that the physician and patient determine the actual amount of the periodic postpayments to be made.

FINANCING ARRANGEMENTS FOR MEDICAL CARE

In the last year there seems to have been increased interest in plans for financing medical accounts. Professionally controlled bureaus of this type have developed arrangements, usually with the cooperation of their local banks, to discount physician's

accounts and to obtain an agreement from the patients to make a small monthly payment for a given period. The financing charges are discounted from the amount paid the physician, so that no additional charges are passed on to the patient. Such an arrangement may be helpful if a physician is in need of cash, but it should be remembered that the physician is paying for the privilege of receiving immediate payment of his bill at the time it is discounted through the bureau.

Commercial companies which offer to finance medical accounts are also continuing their activity in this field. A detailed discussion of their financing methods is contained in the report "Collecting Medical Fees" and is available to any physician desiring such information. Finance plans for medical accounts are similar to other financing arrangements. The finance company does not appear to bear any risk and collects interest and a service charge for its services. The physician who desires to use such financing services is required to give adequate security for any advance or payment he receives through discounting a bill with the finance company. In addition, the physician is, in many instances, ultimately responsible for the face value of the bill although he received an amount equal only to the face value of the account less interest and service charges.

Such finance plans do not lower the cost of medical care but, on the contrary, offer abundant opportunity to pass on to the patient the interest and service costs, thus materially increasing the medical costs to those persons who are often least able to pay. Physicians should carefully investigate finance plans before entering into contracts for discounting medical accounts.

MEDICAL FEE SCHEDULES

The Bureau of Medical Economics, since it was established in 1931, has made an effort to collect the fee schedules used by members of county medical societies. During 1934 the Bureau computed minimum and maximum average fees throughout the United States for 530 items contained in 384 county medical society schedules. This list of 530 items with average fees was kept in the files of the Bureau where it could be referred to on questions involving medical fees, but at no time has any fee schedule been recommended for adoption by county medical societies.

In November 1937 an effort was made to secure a more complete and up to date record of county fee schedules. A letter was sent to the secretary of every county medical society in the United States requesting a copy of the fee schedule that had been adopted or was being used by the county society at that time.

At the annual meeting of the House of Delegates of the American Medical Association in San Francisco in June 1938 the following Resolution on Fee Schedules was adopted:

WHEREAS, State and county medical societies have from time to time, on their own initiative or at the request of others claiming a valid or social interest in the cost of medical services to a particular group, established so-called fee bills on which the contracting persons or groups agree to base charges; and

WHEREAS, Such fee bills often set up without due regard to the equitable interest of the various groups concerned furnish an implement through which exploitation is practiced and abuses encouraged; and

WHEREAS, The necessity for or advisability of such schedules has never been considered by the House; and

WHEREAS, Controversy over the application of such schedules is rife, serving to divert the attention of the contracting persons from the central fact—namely, the quality of medical care—thus reflecting unfavorably on the profession and lending comfort to those critics who charge it with the adoption of trade union methods; and

WHEREAS, It has been the unwritten rule, established by a long line of ethical practitioners, both past and present, to adapt charges for medical services to the ability of his patient to pay, untrammelled by fixed community schedules; therefore be it

Resolved, That this device, appearing with increasing frequency, be examined by an appropriate agency of the American Medical Association to the end that the Association may declare itself on certain controversial points, among which are:

- (a) The advisability of or necessity for fee schedules in the public interest.
- (b) Their ethical or unethical qualities.
- (c) Necessity for certain fixed principles to guide constituent units of the Association when and if it is deemed, in the public interest, necessary to adopt such a device, and
- (d) Whether such schedules, approved by constituent units of the Association, should or should not provide for elasticity so as to permit of adaptation to wage levels, specialized medical service, variations based on differential costs as between urban, semiurban and rural practice and other related considerations.

In June 1938 the Bureau began a compilation and tabulation of the figures recorded in the county medical societies' fee schedules. At first it was necessary to make a composite list of items included in the 559 county fee schedules. The nomenclature and classifications in these schedules varied greatly. No two schedules were completely alike. Many of the counties reported a very short schedule, a list of the most common services performed by the general practitioner in his daily practice. Others had a very elaborate and detailed list of more than 300 items including many unusual and seldom used tests and operations. In the final list, which includes a total of 606 items, the medical and surgical services are subdivided under ten main headings and twenty-three subheadings.

A list of these fees which were reported by the largest number of county medical societies comprises only forty-seven items. This list indicates the type of services on which the majority of the county medical societies considered established fees to be practicable. Except for surgical procedures, complement fixation tests for syphilis and postmortem examinations, the list includes only services which the general practitioner might be expected to perform every day under ordinary conditions. The fact that so many county medical society schedules do not include established fees for the remaining 559 items, which make up the composite list, indicates the difficulty of establishing in advance an evaluation in dollars of the amount of time, skill and responsibility required for a large number of medical procedures.

Compilation of Averages.—The next phase of study, which was completed in 1939, was to compile average minimum fees (means, medians and modes) for each state for every item on which a sufficient number of fees from which to compute such averages was reported. Averages of the minimum fees for the United States have been computed for all the 606 items. These average fees are now available as a basis for a further study on the question of the necessity or desirability of established medical fee schedules.

An equitable fee depends not only on the professional skill required and the time consumed but also on costs of living and on the economic status of the majority of the people in a given locality. Medical fees also show considerable variation in rural areas as compared to industrial centers. Consequently, average fees for the entire United States would be useful to any particular county society only as a comparison of the difference between the local medical fees and the average fees for the United States. Average fees for an entire state might be a more practical guide for a county medical society within the particular state if the average fees were derived from figures that are representative of the actual amounts usually charged for medical services in that state.

Use of Average Fees.—These average figures might also be useful as a guide in determining equitable fees for medical service under various medical care plans for special economic groups such as the indigent, Farm Security Administration clients and the low income group. During the last two years there have been numerous developments in prepayment medical service plans by state medical societies for the low income group. The premium rates and benefits under such plans must be based on some schedule of fees which will be used as a guide in making payments to physicians under these plans. The Bureau of Medical Economics is continually receiving requests for copies of average fees from state medical societies to be used in preparing prepayment medical service plans. In addition, requests have been received from more than twenty-five county medical societies for copies of a schedule of average fees to be used for the purpose of establishing or revising fee schedules. Average fees compiled from existing county medical society fee schedules are not necessarily representative fees for a given service in a particular locality. The average simply stands for the numerous individual items reported for a given service in the large number of county fee schedules.

The data on fee schedules now on file in the Bureau represents the most complete compilation of medical fees available. The complexity and large number of fees for any given service makes it impractical to use the entire 606 item schedule in actual practice either under a prepayment medical plan or in private practice. The charge made for medical services must be determined ultimately by the physician rendering the service or in a pre-

payment plan by a representative committee of the physicians who are to provide service under the plan and who are familiar with local conditions.

If it is deemed advisable to make the average fees compiled by the Bureau available to all organizations or persons interested in this subject, it must be made clear that such average fees are not ultimate or final evaluations of charges for medical services. Experience of physicians with regard to established medical fees indicate that established schedules of fees may become so inflexible that it then becomes difficult to make proper adjustments to assure continued improvement in the quality of medical service.

In whatever way it is determined that the Bureau's compilation of medical fees is to be used, it is imperative that under all circumstances it must be thoroughly understood that the American Medical Association never has and does not now undertake to establish medical fees. The figures now available merely represent averages derived from fee schedules reported by state and county medical societies.

Summary

The Wagner National Health Bill.—The Bureau of Medical Economics prepared factual data which was used by the special committee of physicians of the American Medical Association at the hearings on the Wagner National Health Bill. It also prepared special material requested by the Senate subcommittee.

Publications of the Bureau.—During 1939 the Bureau prepared five new publications, completely revised one old publication and brought up to date the Index and Digest of the Official Actions of the House of Delegates.

State Medical Society Arrangements for the Distribution of Medical Care.—At present at least fourteen state medical societies have statewide arrangements in various stages of development or operation. It is now too early to evaluate these developments in every detail. As experience is gained, it may be desirable to add to the Ten Principles adopted by the House of Delegates in 1934 for the guidance of medical societies in the organization and conduct of such activities. It has become apparent however, that in some sections there appears to be little demand for these organized arrangements for the distribution of medical services.

Group Hospitalization.—At the close of 1939 there were 108 group hospitalization organizations in operation in thirty-five states and in the District of Columbia, with an estimated enrolment of over 5 million persons. Some hospitalization groups continue to provide their members with special medical services contrary to the principles adopted by the House of Delegates in 1937, and several group hospitalization organizations are now offering ward service contracts at lower rates than in the semiprivate room accommodations. This newer development on the part of group hospitalization organizations represents a further deviation from the principles pertaining to group hospitalization adopted by the House of Delegates and should be given serious consideration as a possible movement on the part of these hospitalization groups to provide their subscribers with general medical services.

Commercial Insurance Companies.—In recent years there has been a gradual increase in the development of group insurance offered by established commercial insurance companies. These companies offer a flexibility of programs and pay benefits in cash to the insured individuals. Some newly organized mutual insurance companies or benefit associations have attempted to enter this field with low rate contracts which provide that benefits will be paid in service or that the charges for medical or hospital services will be paid directly to the physician or hospital rendering the services. The accident and health, and hospitalization insurance field has also been entered by some assessment insurance companies which attempt to provide benefits at very low premium rates for the privilege of collecting assessments should the original rates prove inadequate. In addition to insurance companies which offer group contracts, a

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number of well established insurance companies now offer medical and hospital insurance coverage to individuals or families not enrolled in groups. Every effort should be made to gather accurate and reliable information on this voluntary movement looking toward such improvements as experience indicates are necessary in order to maintain and advance the quality of medical and hospital services.

Professionally Controlled Credit and Collection Agencies.—Based on the data collected in 1937 and 1938 there were thirty-three professionally controlled credit and collection bureaus at the beginning of 1938. At the present time information has been collected from sixty-three professionally controlled credit and collection bureaus. Of this total, ten discontinued operation in 1939. The chief advantage of the professionally owned bureaus seems to be that they enable the physicians who use them to maintain some control over the accounts under collection and are so organized that undesirable procedures in dealing with patients can be avoided.

Financing Arrangements for Medical Care.—Corporations organized for the purpose of extending financing privileges for general or special purposes seem to have increased their interest in medical financing in the past year. These finance companies or corporations seem to have perfected plans whereby they suffer very little risk of loss on the accounts handled. These finance plans do not lower the cost of medical care but on the contrary offer opportunity to pass on to the patient interest and service costs, which would thus materially increase the medical costs to those persons who are often least able to pay.

Medical Fee Schedules.—The Bureau of Medical Economics since it was established in 1931 has assembled fee schedules from all parts of the United States. In 1934 the Bureau computed average fees from a composite schedule of 530 items reported by 384 county medical societies. In 1937 and 1938 the Bureau renewed its efforts to secure additional county medical fee schedules. The compilation of median, mean and mode fees completed in 1939 was derived from a composite list of 606 items reported in 559 county medical society fee schedules. This compilation, it is believed, represents the most complete compilation of medical fees available.

If it is deemed advisable to make the average fees compiled by the Bureau available to all organizations or persons interested in this subject, it must be made clear that such average fees are not ultimate or final evaluations of charges for medical services. Experiences of physicians with regard to established medical fees indicate that established schedules of fees may become so inflexible that it then becomes difficult to make proper adjustments to assure continued improvement in the quality of medical service.

In whatever way it is determined that the Bureau's compilation of medical fees is to be used, it is imperative that under all circumstances it must be thoroughly understood that the American Medical Association does not undertake to establish medical fees. The figures now available merely represent averages derived from fee schedules reported by state and county medical societies.

Bureau of Investigation

The Bureau of Investigation continues to fill a real need in supplying information concerning "patent medicines," charlatans and frauds to physicians, laymen, government agencies, radio business bureaus, business corporations, newspapers, radio stations and high school and college students who are making special studies of such items.

The new Food, Drug and Cosmetic Act and the Wheeler-Lea Amendment to the Federal Trade Commission Act have increased the powers and extended the duties of certain agencies of the federal government and have brought about a more intensive cooperative relationship between the Bureau of Investigation and these governmental agencies.

The fact that many "patent medicine" labels now contain a list of the active ingredients in accordance with the new Food, Drug and Cosmetic Act has not affected the number of inquiries received by the Bureau with regard to such items.

Analysis of the inquiries received by the Bureau indicates that about 40 per cent of them were received from physicians, that another 40 per cent were received from laymen not classified otherwise and that about 12 per cent came from students. The remainder were about equally divided among Better Business Bureaus, government agencies, newspapers, magazines and radio stations.

The principal subjects of the inquiries received by the Bureau pertain to "patent medicines," including "epilepsy cures" and "cancer cures," nostrums advertised for the treatment of asthma, cosmetics, "advertising doctors," food products that are widely of therapeutic value are made, coal tar drugs that are more advertised and electrical contrivances most of which are more or less similar to the Abrams machines. The wide variety of subjects inquired about is indicated by the fact that twelve leading subjects represent only 15 per cent of all inquiries received.

PUBLICATIONS AND FIELD WORK

During the year covered by this report the Bureau of Investigation prepared thirty-one articles for publication in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, a number of which were written by Dr. Arthur J. Cramp, formerly Director of the Bureau. Abstracts of 248 Notices of Judgment issued by federal agencies were prepared for THE JOURNAL. The usual demand for booklets and pamphlets issued by the Bureau has continued. Slides, posters and film strips, heretofore available for use in connection with lectures and exhibits, were all discontinued during the year in order that they might be revised. The work of revision is nearing completion.

A part of the work of the Association in St. Louis, exhibit at the annual session of the Association in St. Louis, and material has been prepared for use in the loan exhibits available through the Bureau of Exhibits.

The Director of the Bureau has appeared before a number of lay audiences under the sponsorship of medical societies, of local women's auxiliaries and of a number of other groups.

Bureau of Exhibits

The activities of the Bureau of Exhibits in 1939 were largely concerned with the Scientific Exhibit at the St. Louis session, with exhibits for medical societies and other organizations and for the New York World's Fair and the Golden Gate International Exposition, with the Association's exhibit in the Museum of Science and Industry in Chicago and with motion pictures made available for the use of medical and other scientific groups.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit at the St. Louis session contained much excellent material of great educational value. Each of the exhibits was demonstrated by qualified personnel. There were 222 exhibits shown on the main floor of the Auditorium and in the adjoining corridors, while in the sections of parquet seats surrounding the main floor six groups of motion pictures were being presented constantly.

Fifteen sections of the Scientific Assembly were represented by groups of exhibits dealing with the various specialties. Many of the exhibits pertained to subjects discussed in papers read before sections of the Scientific Assembly, thus making it possible for physicians in attendance to study these subjects in detail after hearing the papers and discussions. Representatives appointed by the various sections rendered excellent service in securing noteworthy exhibits.

The exhibit symposium on heart disease, presented in cooperation with the American Heart Association, was a feature that attracted much attention. Two special exhibits sponsored by the Board of Trustees dealt with fractures and anesthesia. The fracture exhibit, prepared by a special committee with Dr. Kellogg Speed, of Chicago, as chairman, has long been a regular feature of the annual session. The anesthesia exhibit was presented for the third year under a committee of which Dr. Ralph M. Waters, of Madison, Wis., was chairman.

The group of educational exhibits, consisting of material from national and state organizations and from governmental institutions, has been steadily increasing in size and improving in quality. At St. Louis there was an exhibit symposium on graduate medical education, assembled with the cooperation of the Council on Medical Education and Hospitals and consisting largely of material presented by constituent state and component county medical societies.

Awards and citations were given to twenty-four exhibits. The Committee on Awards, of which Dr. Ludvig Hektoen was chairman, labored long and conscientiously in considering the relative merits of the mass of excellent material presented.

ASSOCIATION EXHIBITS

Association exhibits include those exhibits which depict some of the work of the Association and matters in which various departments of the Association are interested. There are thirty-nine such exhibits on the list for loan purposes. During the year two new exhibits were added to this list, nine reconditioned or brought up to date with new material and six eliminated because they were out of date or worn out. Ninety-two Association exhibits were lent in 1939 for showing in twenty-six states and in Canada. In several instances the exhibits were retained over a period of weeks so that they might be shown in different localities. More than one subject was included in some shipments, making the total individual showings during the year nearly 200. The average showing lasted from three or four days to a week, but some were extended to a month or more. Many requests for material were received that could not be complied with because of conflicting dates. Thirty-one shipments were made to medical societies and other scientific organizations, while sixty-one were made to expositions and fairs for the public.

Requests for material from groups other than medical societies and from scientific organizations of known repute were received through component county or constituent state medical societies. When such requests came directly to the American Medical Association, the approval of the local societies was obtained before the material was shipped.

Responsibility for installation and demonstration of the exhibits ordinarily has been borne by the organization borrowing the material. It has been necessary, therefore, to have the exhibits in such shape that they could be easily installed and yet present an acceptable appearance. On twenty occasions a representative of the Bureau installed and demonstrated exhibits.

NEW YORK WORLD'S FAIR

The New York World's Fair opened its 1939 season on April 30 and closed on Oct. 31, 1939, a total of 185 days. The total paid attendance at the fair was 25,811,733. The attendance at the booth of the American Medical Association was approximately 854,515. The daily average was 4,619, but on ten occasions the daily attendance exceeded 10,000. The length of time an individual stayed in the booth varied from a few minutes to half an hour or more. An attendant was on duty constantly at the American Medical Association booth and answered questions as far as was possible, but the large crowds made it impossible to demonstrate the exhibit fully. A total of 2,093 persons filled out the question blanks, the questions being answered by mail.

The subject of the American Medical Association exhibit assigned by the fair was "Medical Education." An advisory committee consisting of the members of the Council on Medical Education and Hospitals, together with Dr. Arthur W. Booth and Dr. Thomas G. Hull, was appointed to assist with the preparation of the exhibit. The exhibit was located in the Hall of Medicine and Public Health and occupied about 600 square feet.

GOLDEN GATE INTERNATIONAL EXPOSITION

The Golden Gate International Exposition opened on Feb. 18 and closed on Oct. 29, 1939, a total of 254 days. The total paid attendance at this fair was 10,496,203. Nearly 1,000,000 people visited the Association's exhibit. Attendants were constantly on duty. As at New York, question blanks were available for the use of visitors and 1,164 persons submitted inquiries, which were answered by mail.

The subject of the American Medical Association exhibit was "Medical Education," to which were added certain other features such as "Contributions of Medicine to Public Welfare" and "Contributions of the American Medical Association." The exhibit was located in the Hall of Science and occupied about 1,200 square feet.

An exhibit on "Food Fads" was made available by the Bureau and was shown in the Foods Building for a period of three months.

MUSEUM OF SCIENCE AND INDUSTRY, OF CHICAGO

At the close of A Century of Progress in Chicago in 1934 the exhibit of the American Medical Association was turned over to the Museum of Science and Industry. In 1939 the museum installed a medical section in temporary quarters, but near the close of the year permanent quarters for the medical section were developed and a part of the Association's exhibit was installed in a room on the first floor and another part on the second floor. Material from the exhibit at the Golden Gate International Exposition will be added to the Association's exhibit at the Museum of Science and Industry. During the year 1939 there were approximately half a million visitors in the one wing of the museum that was open to the public.

MOTION PICTURES

The demand for motion pictures is insistent and continuous and has become a major problem for the Bureau. Hundreds of letters inquiring about sources of pictures on particular subjects besides numerous requests for films from the American Medical Association loan collection are received. During the year seven new subjects were added to the list of available films, fifteen old subjects retained and one discontinued. There are now twenty-two subjects in the loan collection, only three of which are suitable for lay audiences. Two pictures are available in 35 mm. size only, and the demand for them is very small. Three pictures are accompanied by sound, the rest being silent films.

There were 368 bookings of motion pictures during the year in thirty-two states and Canada. In some instances the pictures were shown before several different groups, making 567 showings in all, an average of eleven showings a week. These pictures were displayed to various groups varying in number from six or eight students to 1,000 or more persons, the total for the year being about 45,000.

Summary

The Scientific Exhibit at the St. Louis session included 222 exhibits and six groups of motion pictures. There were special exhibits on fractures and anesthesia and exhibit symposiums on heart disease and graduate medical education. Awards and citations were made to twenty-four exhibits.

Association exhibits, dealing with the activities of the Association, now number thirty-nine. More than 200 exhibits were shown in twenty-six states and Canada.

The exhibit of the American Medical Association at the New York World's Fair attracted nearly a million visitors, more than 2,000 of whom sent in questions which were answered by mail. Besides the main exhibit on "Medical Education" the Association contributed to the fair a series of historical murals and an exhibit on Hygeia, the Health Magazine.

The Golden Gate International Exposition at San Francisco included an exhibit from the Association and was also visited by nearly a million people, of whom more than 1,100 sent in questions which were answered by mail. Besides the main exhibit on "Medical Education," the Association contributed an exhibit on "Food Fads" for a period of three months.

Exhibit material from the Association's exhibit at A Century of Progress, held in Chicago in 1933 and 1934, has been turned over to the Museum of Science and Industry in Chicago and installed in the medical section of the museum. Material from the exhibit at the Golden Gate International Exposition will be added.

There were 567 showings of motion pictures in thirty-two states and Canada before audiences totaling about 45,000.

REPORTS OF OFFICERS

GRANTS AND EXPENSES PAID IN 1938

Grant 529, Helen F. Tucker.....	\$ 175.00
Grant 530, George Herrman.....	200.00
Grant 531, L. R. Dragstedt and G. M. Dack.....	600.00
Grant 532, Walter Schiller.....	200.00
Grant 533, Hardy A. Kemp and W. M. Fisher.....	500.00
Grant 534, Martin Silberberg.....	600.00
Grant 535, W. R. Tweedy.....	200.00
Grant 536, Catharine Macfarlane.....	1,900.00
Grant 537, Herman Kabat.....	400.00
Grant 538, Eben J. Carey.....	750.00
Grant 539, Albert V. Hardy.....	500.00
Grant 540, James W. Henry.....	200.00
Grant 541, Henry Laurens.....	350.00
Grant 542, Kendall B. Corbin.....	200.00
Grant 543, F. W. Dunihue.....	200.00
Grant 544, N. G. Eaton.....	50.00
Grant 545, Francis D. Gunn.....	81.00
Grant 546, Max T. Schnitker.....	300.00
Grant 547, Warren O. Nelson.....	300.00
Grant 548, Felix Saunders.....	300.00
Grant 549, D. B. Phemister and K. S. Grimson.....	300.00
Grant 550, Hugh S. Morgan.....	250.00
Grant 551, Marion Fay.....	400.00
Grant 552, Paul L. Day and William C. Langston.....	300.00
Grant 553, Fritz Schiff.....	300.00
Grant 554, Roy H. Turner.....	250.00
Grant 555, Owen H. Wangersteen.....	400.00
Grant 556, W. D. Armstrong.....	300.00
Grant 557, Charles O. Warren Jr.....	250.00
Grant 558, Harold D. West.....	200.00
Grant 559, B. S. Kline and H. P. Lankelma.....	400.00
Grant 560, Robert Sealock.....	300.00
Grant 561, Joseph H. Roe.....	400.00
Grant 562, Ben Vidgoff.....	200.00
Grant 563, Robert B. Greenblatt.....	600.00
Grant 564, Alexander S. Wiener.....	229.05
Grant 565, Robert Sealock.....	28.00
Clerical expense.....	
Committee expense.....	
Printing and supplies.....	\$ 543.63
Balance on hand.....	\$ 14,831.05

ADDENDA TO REPORT OF BOARD OF TRUSTEES

Report of the Committee on Scientific Research for 1939

The committee has continued to support by small grants promising individual research in various fields of medical interest. During the year seventy-six applications have been considered and thirty-seven grants have been made. In all cases the money has been turned over to the financial officer of the institution in which the grantee works, with the understanding that it would be subject to requisitions by the grantee and that an accurate account of the expenses would be kept. Results of work under thirty-five grants have been published or are in course of publication. The results under twenty-three

Financial Statement for 1939

Balance, Jan. 1, 1939.....	\$ 1,067.87
Appropriation for 1939.....	13,750.00
Refund, grant 397.....	80.05
Refund, grant 458.....	15.15
Refund, grant 463.....	194.03
Refund, grant 466.....	104.78
Refund, grant 525.....	177.80
	\$15,374.68

grants prior to 1939 are being prepared for publication; in the case of forty-five grants prior to 1939 active work is still in progress, but in several cases reports on results have been published. During the year unexpended balances from grants amounting to \$556.81 have been refunded (see financial statement for 1939).

The committee ventures to recommend that the same appropriation be made for 1940 as for 1939; namely, \$12,500 for grants in aid of medical research and \$1,200 for expenses of the committee.

The financial statement for 1939 is presented; also brief accounts of grants work on which has been completed during the year and of grants pending at the end of 1938, as well as a list of grants made in 1939.

Respectfully submitted.

COMMITTEE ON SCIENTIFIC RESEARCH OF
THE AMERICAN MEDICAL ASSOCIATION.
LUDVIG HEKTOEN, Chicago, Chairman.
Term expires, 1941.

N. W. JONES, Portland, Ore.
Term expires, 1944.

MARTIN H. FISCHER, Cincinnati.
Term expires, 1940.

C. C. BASS, New Orleans.
Term expires, 1942.

JOHN J. MORTON, Rochester, N. Y.
Term expires, 1943.

GRANTS OF COMMITTEE ON SCIENTIFIC RESEARCH

NEW GRANTS—1939

- Grant 529: Helen F. Tucker, Skidmore College, Saratoga, N. Y., \$175, effect of amino acids on liver lipids.
- Grant 530: George Herrmann, University of Texas, \$200, chemical changes in heart muscle.
- Grant 531: L. R. Dragstedt and G. M. Dack, University of Chicago, \$600, bacterium necrophorum.
- Grant 532: Walter Schiller, Cook County Hospital, Chicago, \$200, ovarian tumors.
- Grant 533: Hardy A. Kemp and W. M. Fisher, Baylor University, \$500, venom of southern and southwestern scorpions.
- Grant 534: Martin Silberberg, Washington University School of Medicine, \$600, effect of hormones on bone and cartilage.
- Grant 535: W. R. Tweedy, Loyola University School of Medicine, Chicago, \$200, phosphorus metabolism.
- Grant 536: Catharine Macfarlane, Woman's Medical College of Pennsylvania, \$1,900, value of periodic pelvic examination in detecting cancer of the uterus.
- Grant 537: Herman Kabat, University of Minnesota, \$400, neurophysiologic alterations in anemia of the brain.
- Grant 538: Eben J. Carey, Marquette University, \$750, physical and chemical agents influencing histologic signs of muscle and nervous action.
- Grant 539: Albert V. Hardy, Columbia University, \$500, Shigella dysenteriae.
- Grant 540: James W. Henry, Loyola University School of Medicine, Chicago, \$200, experimental hypertension.
- Grant 541: Henry Laurens, Tulane University, \$350, lowering of arterial pressure by carbon arc radiation.
- Grant 542: Kendall B. Corbin, University of Tennessee, \$200, alterations in the hip after deafferentation.
- Grant 543: F. W. Dunihue, University of Vermont, \$50, action of aspartic acid on bone marrow.
- Grant 544: N. W. Popoff, Highland Hospital, Rochester, N. Y., \$81, functional rejuvenation.
- Grant 545: A. G. Eaton, Louisiana State University Medical Center, \$300, absorption of amino acids.
- Grant 546: Francis D. Gunn, Northwestern University Medical School, \$300, experimental tuberculosis in dogs.
- Grant 547: Max T. Schnitker, Toledo Hospital, Toledo, Ohio, \$300, experimental following cerebral trauma.
- Grant 548: Warren O. Nelson, Wayne University College of Medicine, Detroit, \$300, relation of the thymus gland to growth and development.
- Grant 549: Felix Saunders, University of Chicago, \$250, growth requirements of pathogenic bacteria.
- Grant 550: D. B. Phemister and K. S. Grimson, University of Chicago, \$400, mechanism of blood pressure in sympathetomized dogs.
- Grant 551: Hugh S. Morgan, Vanderbilt University School of Medicine, \$300, bacterial infections in the chick embryo.
- Grant 552: Marion Fay, Woman's Medical College of Pennsylvania, \$250, biochemistry of strontium.

Grant 553: Paul L. Day and William C. Langston, University of Arkansas, \$200, nutritional cytopenia in the monkey.

Grant 554: Fritz Schiff, Beth Israel Hospital, New York, \$400, serologic classification of Salmonella.

Grant 555: Roy H. Turner, Tulane University, \$200, physiology of peripheral blood vessels.

Grant 556: Owen H. Wangensteen, University of Minnesota, \$900, physiologic basis of surgical treatment of duodenal and gastric ulcer.

Grant 557: W. D. Armstrong, University of Minnesota, \$500, calcification of bone in vitro.

Grant 558: Charles O. Warren Jr., Cornell University Medical College, \$262, metabolism of bone marrow.

Grant 559: Harold D. West, Meharry Medical College, \$50, synthesis of *dl*-threonine.

Grant 560: B. S. Kline and H. P. Lankelma, Western Reserve University, \$500, chemical study of antigens.

Grant 561: Robert R. Sealock, University of Rochester, \$400, melanin pigmentation.

Grant 562: Joseph H. Roe, George Washington University, \$350, vitamin C requirements of man.

Grant 563: Ben Vidgoff, University of Oregon Medical School, \$300, isolation and effect of the inhibitory hormone of the testes on the endocrine glands.

Grant 564: Robert B. Greenblatt, University of Georgia, \$400, influence of gonadotropic preparations on the human ovary.

Grant 565: Alexander S. Wiener, Office of the Chief Medical Examiner, New York City, \$200, agglutinogens in human blood and studies on the Kline test.

STATE OF WORK UNDER PREVIOUS GRANTS

1. COMPLETED DURING THE YEAR

Grant 324, 1934: William deB. MacNider, University of North Carolina, \$285, study of artificial circulation in the kidney. MacNider, William deB., and Donnelly, G. L.: Value of Omentopexy in Establishing an Adventitious Circulation in the Normal Kidney, *Proc. Soc. Exper. Biol. & Med.* 40: 271, 1939.

Grant 344, 1934: Paul L. Day and W. C. Langston, University of Arkansas School of Medicine, \$300, effect of withdrawal of vitamin G from diet of monkeys. Shukers, Carroll F.; Langston, William C., and Day, Paul L.: The Normal Blood Picture of the Young Rhesus Monkey, *Folia haematol.* 60: 416, 1938. Day, Paul L.; Langston, William C., and Darby, William J.: Failure of Nicotinic Acid to Prevent Nutritional Cytopenia in the Monkey, *Proc. Soc. Exper. Biol. & Med.* 38: 860, 1938. Langston, William C.; Darby, William J.; Shukers, Carroll F., and Day, Paul L.: Nutritional Cytopenia (Vitamin M Deficiency) in the Monkey, *J. Exper. Med.* 68: 923, 1938.

Grant 350, 1935: Frederic A. Gibbs, Harvard Medical School, \$100, fiber system in the cat's brain concerned in convulsions. Gibbs, Erna Leonhardt, and Gibbs, Frederic Andrews: A Purring Center in the Cat's Brain, *J. Comp. Neurol.* 64: 209, 1936. Gibbs, Frederic A.: Modification of the Cortical Frequency Spectrum by Changes in CO₂ Blood Sugar and O₂, *J. Neurophysiol.*, to be published.

Grant 379, 1935: Victor C. Myers (Donald E. Bowman), Western Reserve Medical School, \$650, chemical test for pregnancy. Bowman, Donald E.: The Use of a Reducing Factor of Pregnancy Urine in the Diagnosis of Pregnancy, *J. Lab. & Clin. Med.* 24: 1072, 1939.

Grant 388, 1935: Tracy J. Putnam, Boston City Hospital, Boston, \$150, effect of low voltage current on nervous system. Alexander, Leo: Clinical and Neuropathological Aspects of Electrical Injuries, *J. Indust. Hyg. & Toxicol.* 20: 191, 1938. Alexander, Leo: Electrical Injuries to Central Nervous System, *M. Clin. North America* 22: 663, 1938. Weeks, Arthur W., and Alexander, Leo: The Distribution of Electric Current in the Animal Body: An Experimental Investigation of 60 Cycle Alternating Current, *J. Indust. Hyg. & Toxicol.* 21: 517, 1939.

Grant 415, 1936: Gordon H. Scott, Washington University, St. Louis, \$300, lead and aluminum in cerebrospinal fluid. Scott, Gordon H., and McMillen, J. Howard: Spectrographic Analyses of Human Spinal Fluid, *Proc. Soc. Exper. Biol. & Med.* 35: 287, 1936. McMillen, J. Howard, and Scott, Gordon H.: Spectrographic Studies of Lead in Human Blood, *ibid.*, p. 364.

Grant 416, 1936: Jean Broadhurst, Teachers College, Columbia University, \$200, inclusion bodies in the female genital area. Broadhurst, Jean; Ewing, Ruth; McMoyn, Marguerite, and MacLean, Estelle: The Incidence of Cytoplasmic Inclusion Bodies in Vaginal Smears, to be published.

Grant 423, 1936: Alfred Gilman, Yale University, \$300, physiology of the antidiuretic hormone of the posterior pituitary. Gilman, Alfred, and Goodman, Louis: Secretory Response of the Posterior Pituitary to the Need for Water Conservation, *J. Physiol.* 90: 113, 1937. Gilman, Alfred, and Kidd, Nancy E.: The Antidiuretic Activity of Blood and Its Possible Relation to Histamine, *J. Pharmacol. & Exper. Therap.* 63, 1938. Gilman, Alfred, and Goodman, Louis: Pituitrin Anemia, *Nature*, London 143: 379, 1939.

Grant 444, 1937: George Herrmann, University of Texas, Galveston, \$300, chemistry of the heart muscle. See grant 530, 1939. Herrmann, George and Erhard, Peter: Total Creatinine, Phosphates, Calcium and Potassium in Normal and Infarcted Myocardium of the Dog, *Proc. Soc. Exper. Biol. & Med.* 38: 35, 1938. Herrmann, George and Dechard, George M., Jr.: The Chemical Nature of Heart Failure, *Ann. Int. Med.* 12: 1233, 1939.

Grant 447, 1937: R. C. Herrin, University of Wisconsin, \$400, urea clearance. Herrin, R. C., and Nicholes, H. J.: The Influence of Vitamin A upon Urea and Inulin Clearance in the Dog, *Am. J. Physiol.* 125: 786, 1939. Herrin, R. C.: Influence of Vitamin A upon Urea Clearance in the Rat, *Proc. Soc. Exper. Biol. & Med.*, to be published. Herrin, R. C.: The Influence of Vitamin A upon Urea Clearance in the Human Subject, *J. Clin. Investigation*, to be published.

Grant 449, 1937: Charles W. Turner, University of Missouri, \$230, pituitary hormones. See grant 511, 1938. Turner, C. W., and Capps, P. T.: The Thyrotropic Hormone in the Pituitary of the Albino Rat During Growth, Pregnancy and Lactation, *Endocrinology* 24: 650, 1939. Bergman, A. J., and Turner, C. W.: A Comparison of the Guinea Pig and Chick Thyroid in the Assay of the Thyrotropic Hormone, *ibid.*, p. 656.

Grant 458, 1937: Orthello R. Langworthy, Johns Hopkins University, \$350, effect of ovulation and pregnancy on smooth muscle of urinary bladder (refund 15 cents). Langworthy, O. R., and Brack, C. B.: The Effect of Pregnancy and Corpus Luteum on Vesical Muscle, *Am. J. Obst. & Gynec.* 37: 121, 1939. Brack, C. B., and Langworthy, O. R.: The Effect of Estrogenic Hormone on Vesical Muscle, *Endocrinology* 25: 111, 1939.

Grant 460, 1937: M. G. Seelig, Barnard Free Skin and Cancer Hospital, St. Louis, \$250, carcinogenicity of heterocyclic hydrocarbons. Joseph, Lionel: Nitrogen-Containing Carcinogenic Compounds, *Proc. Soc. Exper. Biol. & Med.* 41: 334, 1939.

Grant 465, 1937: Fred L. Humoller, Loyola University School of Medicine, Chicago, \$300, toxic principles in culture fluids of Bacterium enteritidis. Humoller, Fred L.; Lonert, A. C., and Bottino, Clement G.: The Preparation of an Antigenic Toxin from Salmonella Enteritidis, *J. Infect. Dis.* 65: 206, 1939.

Grant 469, 1937: Joseph Krafka Jr., University of Georgia School of Medicine, \$370, elastometric measurements on smooth muscle and connective tissue. Krafka, Joseph, Jr.: Comparative Study of the Histophysics of the Aorta, *Am. J. Physiol.* 125: 1, 1939; Changes in Elasticity of the Aorta with Age, *Arch. Path.*, to be published.

Grant 478, 1937: Martin Silberberg, Washington University School of Medicine, \$600, influence of hormones on bone growth. See grant 534, 1939. Silberberg, Martin, and Silberberg, Ruth: Influence of Cattle Anterior Pituitary Extract on Endochondral Ossification in Young Ovariectomized Pigs, *Proc. Soc. Exper. Biol. & Med.* 37: 446, 1938. Silberberg, Martin, and Silberberg, Ruth: Effects of Anterior Pituitary Implants and Extracts on Epiphyses and Joints of Immature Female Guinea Pigs, *Arch. Path.* 26: 1208, 1938. Silberberg, Martin, and Silberberg, Ruth: The Effects of Thyroid Feeding on Growth Processes and Retrogressive Changes in Bone and Cartilage of the Immature Guinea Pig, *Growth* 2: 327, 1938. Silberberg, Martin, and Silberberg, Ruth: The Growth and Retrogressive Changes in Cartilage and Bone of the Guinea Pig Produced by Potassium Iodide, *ibid.*, p. 369. Silberberg, Martin, and Silberberg, Ruth: Growth Processes in Cartilage and Bone Subsequent to Gonadectomy and Administration of Anterior Pituitary Extract of Cattle in Immature Male and Female Guinea Pigs, *Am. J. Path.* 15: 56, 1939. Silberberg, Martin, and Silberberg, Ruth: A Comparison of the Effects of Anterior Pituitary Hormone on Skeletal Tissues of Young and Mature Guinea Pigs, *ibid.*, p. 547. Silberberg, Martin, and Silberberg, Ruth: Action of Estrogen on Skeletal Tissues of Immature Guinea Pigs, *Arch. Path.* 28: 340, 1939.

Grant 482, 1937: Warren O. Nelson, Wayne University College of Medicine, Detroit, \$400, effect of thymus gland on the growth of rats. See grant 548, 1939. Jones, Ralph G., and Segaloff, Albert: Growth and Metamorphosis of Anuran Larvae on Thymsus Extracts, *Proc. Soc. Exper. Biol. & Med.* 39: 172, 1938. Segaloff, Albert, and Nelson, Warren O.: The Thymsus-Adrenal Relationship, *Am. J. Physiol.*, to be published. Segaloff, Albert, and Nelson, Warren O.: Growth of Vitamin Deficient Rats Treated with Thymocrescin, *Endocrinology*, to be published.

Grant 484, 1938: William Antopol, Newark Beth Israel Hospital, Newark, N. J., \$250, Schwartzman phenomenon. Antopol, William, and Glick, David: Organs as a Source of Factors Capable of Eliciting the Schwartzman Phenomenon, *Proc. Soc. Exper. Biol. & Med.* 35: 346, 1938. Antopol, William; Schiffrin, Arthur, and Tuchman, Lester: Decreased Cholinesterase Activity of Serum in Jaundice and in Biliary Disease, *ibid.*, p. 363. Glick, David, and Antopol, William: Studies on the Chemical Nature of Factors Producing the Schwartzman Phenomenon, *J. Infect. Dis.* 64: 22, 1939.

Grant 485, 1938: Erwin Chergaff, Columbia University, \$400, chemistry and physiology of obstructive jaundice. Olson, Kenneth B., and Menzel, Hildegard: The Bleeding Tendency in Obstructive Jaundice and Its Correction by Means of Vitamin K, *Surgery* 6: 206, 1939.

Grant 486, 1938: Ben Vidgoff, University of Oregon Medical School, \$300, inhibitory hormone of the germinal epithelial cells of the testis and its effect on the rat prostate. See grant 563, 1939. Vidgoff, Ben; Vehrs, Herman, and Hill, Richard: Studies on the Aqueous Testicular Hormone: I. Changes in Male Secondary Sex Organs, *West. J. Surg.* 46: 648, 1938. Vidgoff, Ben: The Hormonal Control of the Prostate and Its Relation to Clinical Prostatic Hypertrophy, *J. Urol.* 42: 359, 1939. Vidgoff, Ben; Hill, Richard; Vehrs, Herman, and Kuhin, R.: Studies on the Inhibitory Hormone of the Testes: II. Preparation and Weight Changes in the Sex Organs of the Adult Male White Rat, *Endocrinology* 25: 391, 1939. Vidgoff, Ben, and Hill, Richard: Studies on the Inhibitory Hormone of the Testes: III. Histological Effects on the Male Sex Organs of the White Rat, *ibid.*, p. 568.

Grant 487, 1938: Felix Saunders, University of Chicago, \$250, isolation of growth factors. Dorfman, Albert; Koser, Stewart A., and Saunders, Felix: The Activity of Certain Nicotinic Acid Derivatives as Growth Essential for the Dysentery Bacillus, *J. Am. Chem. Soc.* 60: 2004, 1938. Dorfman, Albert; Koser, S. A.; Reames, H. R.; Swingle, K. E., and Saunders, Felix: Nicotinamide and Related Compounds as Essential Growth Substances for Dysentery Bacilli, *J. Infect. Dis.* 65: 163, 1939.

Grant 488, 1938: Lester R. Dragstedt and G. M. Dack, University of Chicago, \$600, relationship of Bacterium necrophorum to ulcerative colitis. See grant 531, 1939. Dack, G. M., and Dragstedt, Lester R.: Effect of Introducing Oxygen into the Isolated Colon of a Patient with Chronic Colitis, *Am. J. Digest. Dis.* 5: 84, 1938. Dack, G. M., and others: Comparison of Bacterium Necrophorum from Ulcerative Colitis in Man with Strains Isolated from Animals, *J. Infect. Dis.* 62: 169, 1938.

Grant 489, 1938: Alexander S. Wiener, Jewish Hospital of Brooklyn, \$200, agglutinogens in human blood and studies on Kline test. See grant 565, 1939. Wiener, Alexander S., and Derby, Irving M.: Site of Origin of Syphilitic Reagin in Spinal Fluid of Patients with Neurosyphilis, *Proc.*

[illegible]

Grant 493, 1938: The Role of the Pituitary Gland in Water Balance, *Ann. Surg.*,
Medicine, \$500, and Heinbecker, P.: Water Metabolism in Normal, Diabetic
H. L., and Heinbecker, P.: Responses to Diabetes Insipidus and H. L., and
Clearances on Responses to Normal, Diabetes Insipidus and H. L., and
of Kidneys in Normal, Diabetes Insipidus and H. L., and
Am. J. Physiol. 123: 566, 1938.
The Role of the Pituitary Gland in Water Balance, *Ann. Surg.*,
published.
Grant 493, 1938: George M. Curtis, Ohio State University, \$600,
ism metabolism in thyroid disease. Puppel, Italo D., and
Balance in Nodular Goiter, *J. Clin. Endocrinol.* 1: 17, 1938.
and Curtis, George M.: The Role of the Pituitary Gland in Water Balance, *Ann. Surg.*,
Poth, 26: 693, 1938.
Iodine Metabolism in Thyroid Disease, *J. Clin. Endocrinol.* 1: 17, 1938.
Iodine Metabolism in Thyroid Disease, *J. Clin. Endocrinol.* 1: 17, 1938.

⁶George M., 1938. Puppel, Italy D.: The Balance of Male Sex Hormone on the Third Internat. Goiter Conference, Chicago, 1938.

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bacteriophage. Phage from Intracellular Tubercle. *Med.* **40**: 51, 1939.
 Grant 500, 1938: Moore E. Mills and Francis A. Tubercle. University Medical School, \$300, experimental pulmonary tuberculosis. Moore A. and Colwell, Charlotte A.: *State of*
 Suspend in Gastric Mucin, A. *Rev. Tuberc.* **40**: 109, 1939.
 Grant 509, 1938: Moore E. Remington, Medical College of the State of Iowa, \$400, iodine deficiency in the rat. Remington, Roe E.:
 \$400, and Carotene on Low-Iodine Goiter, in course of publication.
 Effect of Ultraviolet Irradiations upon the Growth of *Mycobacterium tuberculosis*. *Island College of*
 \$400, in course of publication. Reynolds

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Grant 520, 1938: H. E. Carter, University of Illinois, \$250, betaines in relation to the Vitamin C Requirement, in course of publication.

Grant 523, 1938: Frederick A. Fender, Stanford University School of Medicine, \$150, development of device for direct neurologic stimulation; Hydrochlorides of di-Serum, di-Tyrosine, di-Histidine, di-Valine, di-Lysine, di-Proline, di-Glutamine, di-Methionine, di-Isoleucine, di-Leucine, di-Phe-
Chem., to be published.

Fender, Frederick A.: A Precision Device for Faradic Stimulation, *J. Neurology*, 1939, 69: 491, 1939.

R. Buchanan, University of Mississippi, \$400, study of aminopyridines in the treatment of multiple sclerosis; Buchanan, A. R.: Nystagmus as a Sign of Lesions of the Vestibular Nuclear Lesions, *Ann. Otol. Rhinol. Laryngol.*, 1937, 46: 80.

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2. INCOMPLETE
not completed, account rendered of expenses b

2. INCOMPLETE

A. Work under the grant completed, and
not published fully: F. H. Pike, Columbia University, \$600, and
J. H. Hopkins University, \$250.

Grant 286, 1933: F. H. Ulrich, Johns Hopkins University, Baltimore, Md.
 f successive experimental lesions of the anterior pituitary gland in the cat. See grant 372, 1935.
 Grant 308, 1933: John L. Ulrich, Johns Hopkins University, Baltimore, Md.
 Birch, University of Illinois School of Medicine, Urbana, Ill.
 Institute for the Study of the Brain, Chicago, Ill.

Grant 309, 1933: Carroll L. Burt, "The reflex system in the control of urine for sex hormones," *Journal of Experimental Medicine*, \$300, assay.

Grant 308, 1933: Robert Gault and A. C. Ivy, "American University, \$450. Mechanical stimulation of the vagus nerve," *Journal of Experimental Medicine*, \$600, grant 308.

Grant 367, 1935: the Deaf-Blind, Evanston, Ill., 1936. tactile organs. See grant 412, 1936.

Grant 312, 1933.
cerebral functions in the ad.
1933.

OFFICERS

Grant 382, 1935: L. Goodman, A. J. Geiger and L. Claiborn, Yale University, \$250, antianemic principle.

Grant 401, 1936: W. T. Dawson, University of Texas, Galveston, \$250, cardiac glucosides.

Grant 402, 1936: J. Dorfman, Louisiana State University, \$250, and other estrogenic compounds.

Grant 403, 1936: J. W. American Institut, \$250, tactile organ

Grant 407, 1936: Ralph I. ...
estrogenic substance in human urine and stimulation of vibriol
Grant 412, 1936: Robert H. Gault and A. C. ...
... Evanston, Ill., \$400, stimulation of ...
... See grant 367, 1935.
... College of the City of New York,
... in urine.
... Illinois College of
... and

Grant 431, 1936: Benjamin H. Cole, University of Montana, Missoula, Montana. The effect of hyperthyroidism on the cholesterol tolerance of the liver.

Grant 452, 1937: G. Albin Matson, University of Oregon, study of excretory function of certain connective tissue cells.

Grant 456, relation of coronary arteries (refund, \$194.00).
School, \$500, relation of coronary arteries to glycolysis.
glycuronic metabolism. Jay Conger Davis, M.D., University of California, Los Angeles.
Grant 463, 1937: Frank W. Allen, University of California, Los Angeles.
drugs on the heart. Frank W. Allen, University of California, Los Angeles.
Grant 464, 1937: Frank W. Allen, University of California, Los Angeles.
Grant 465, 1937: Frank W. Allen, University of California, Los Angeles.
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Grant 464, 1937: B. O. Barnes, Rush Medical College, Chicago, Ill.
relation of nucleotide
Grant 467, 1937: Timothy Leary, Office of Medical Examination, New York, N. Y., \$200, incidence
of adrenals. 1937: metabolic processes and relation of cholesterol to ne

\$940.

Grant 471, 1937: Margaret Lasker, Yonkers, N.Y., \$500, early atherosclerosis in relation to plastic growth.

Grant 472, 1937: Margaret Lasker, State University of Iowa, Ames, Ia., \$500, embryology of the placenta and fructosuria.

Grant 473, 1937: Amy L. Daniels, Vanderbilt University School of Medicine, Nashville, Tenn., \$500, comparative histologic function of the placenta in relation to adsorption.

Johnin, J. M., Soc. Exper. Biol.

Grant 480, 1937: J. M. Johlin, Van Nuys, California, \$300,
relation of fluorine to toxins by interfacial adsorption.
Grant 483, 1937: J. M. Johlin, Van Nuys, California, \$300,
attenuation of toxins by Interfacial Adsorption.
Grant 486, 1938: B. O. Raulston, University of
North Carolina, \$250, relationship between insulin and diabetes.
Grant 487, 1938: W. C. Strouse and B. O. Raulston, University of
North Carolina, \$250, relationship between insulin and diabetes.

Grant 492, 1938: \$500, sodium-potassium
Southern California, John S. Lawrence, University
Grant 513, 1938: \$500, granulecyclopia in the cat.
granulocytopenia in the cat. Cleveland, Vanderbilt University, \$400,

B. ACTIVE WORK STILL IN PROGRESS
J. Lisle Williams, Rush Medical College, Chicago,
in acute infectious diseases.
University, \$150, study \$245.

B. ACTIVE WORK STILL IN PROGRESS

Grant 254, 1932: J. H. Reynolds, Johns Hopkins University, \$200, decreased dextrose tolerance.
Grant 310, 1934: Lay Martin, Johns Hopkins University, \$200, decreased dextrose tolerance.
Grant 462, 1937: James L. O'Leary, Washington University, St. Louis, Mo., pathways through pancreatic juice. See grant 462, 1937.
Grant 462, 1937: James L. O'Leary, Washington University, St. Louis, Mo., pathways through pancreatic juice. See grant 462, 1937.
Grant 462, 1937: James L. O'Leary, Washington University, St. Louis, Mo., pathways through pancreatic juice. See grant 462, 1937.

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Grant 337, 1934:
Lymphatic Nervous System in the
the Sympathetic Nervous System, San Antonio, Texas,
442, 1938.
Royall M. Calder, San Antonio, Nebraska, \$200, effect
specific inflammation.
University of Nebraska, Omaha.
Hospital, Newark, Phila.

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Grant 420, 1936: Arthur Knudson, Albany, N. Y., \$350, bachelors. Phagocytosis of cholesterol by the Schoenheimer-Sperry Method to the Detection of Cholesterol Esters in Tissues, J. Biol. Chem.

University of California, Berkeley, California

\$500, sound
Grant 441, 1937: E.
Oregon Medical School, \$350, and
of sorbitol. Todd, W. R.; Myers, Jane, and
abolism of Sorbitol and Mannitol, J. Biol. Chem. University, \$480, pa
University of Mississippi, \$400,
P.: Nystagmus in
\$125: 688, 1939.

ette University, \$750, physical
ology of muscle and nerve
of Active

demology Statistics on, 1937
 Pub. Health 27: 1023, 1937
 mber in the New Orleans Area, Aron.
 Grant 445, 1937: Paul M. Levin, Johns Hopkins. A Net
 Spiral in the New Orleans Area, Aron.
 Grant 445, 1937: Paul M. Levin, Johns Hopkins. A Net
 Spiral in the New Orleans Area, Aron.
 Grant 445, 1937: Paul M. Levin, Johns Hopkins. A Net
 Spiral in the New Orleans Area, Aron.

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Columbia University, \$600, the effects
the nervous system.
Johns Hopkins University, \$250,
Grant 453, 1937: L. P. Grant, man phenomenon.
Southern California, \$300, hypophy- Elizabeth S. Russell, Roscoe Harbor, Me., \$225, genetics of tumors in the
and metabolism.
Harbor, Me., \$225, genetics of tumors in the
Johns Hopkins University, \$200, gastric
University, \$400, physi-

Grant 462, 1937: Roy H. Turner, Tulane University.
See grant 310, 1934.
Grant 473, 1937: Roy H. Turner, Tulane University.
See grant 511, 1938.

Ulrich, Johns Hopkins University. \$450. Grant 308. Physiology of blood vessels and agonistic muscles. See grant 308.

Grant 474, 1937: Marion Fay, Woman's Medical College of Pennsylvania, \$275, biochemistry of strontium. See grant 552, 1939.

Grant 477, 1937: Irving J. Wolman, University of Pennsylvania, \$335, lipid pneumonia. See grant 517, 1938.

Grant 479, 1937: Tracy J. Putnam, Boston City Hospital, \$200, injuries to the cervical cord.

Grant 481, 1937: Warren O. Nelson, Wayne University College of Medicine, Detroit, \$200, synthetic androgenic substances.

Grant 491, 1938: Charles G. Johnston, Wayne University College of Medicine, Detroit, \$660, intestinal obstruction. Abbott, W. Osler, and Johnston, Charles G.: Intubation Studies of the Human Small Intestine: X. A Nonsurgical Method of Treating, Localizing and Diagnosing the Nature of Obstructive Lesions, *Surg., Gynec. & Obst.* **66**: 691, 1938. Johnston, Charles G., and others: Decompression of the Small Intestine in the Treatment of Intestinal Obstruction, *J. A. M. A.* **111**: 1365, 1938. Noer, R. J., and Johnston, Charles G.: Decompression of the Small Bowel in Intestinal Obstruction, *Am. J. Digest. Dis. & Nutrition* **6**: 46, 1939. Lofstrom, James E., and Noer, Rudolf J.: The Use of Intestinal Intubation in the Localization of Lesions of the Gastrointestinal Tract, *Am. J. Roentgenol.* **42**: 321, 1939. Penberthy, Grover C.; Johnston, Charles G., and Noer, R. J.: The Treatment of Adynamic Ileus by Gastrointestinal Intubation, *South. Surgeon* **8**: 416, 1939.

Grant 494, 1938: Catharine Macfarlane, Woman's Medical College of Pennsylvania, \$480, value of periodic pelvic examination in detecting cancer of the uterus. See grant 536, 1939. Macfarlane, Catharine: An Experiment in Cancer Control, *Bull. Am. Soc. Control Cancer* **21**: 6 (Nov.) 1939.

Grant 495, 1938: Lincoln Opper and Barnett Surc, University of Arkansas, \$600, relation of vascular disease to avitaminosis in the rat. Opper, Lincoln: Experimental Vascular Disease in Rats Produced by Multiple Depletions of Vitamin A, *Proc. Soc. Exper. Biol. & Med.* **40**: 449, 1939.

Grant 498, 1938: Henry Laurens, Tulane University, \$351.50, lowering of arterial pressure by carbon arc radiation. See grant 541, 1939.

Grant 499, 1938: Robert W. Virtue, University of Denver, \$365, formation of bile acids. Virtue, Robert W., and Doster-Virtue, M. E.: Studies on the Production of Taurocholic Acid in the Dog: IV. Cystein, Homocysteine and Thioglycolic Acid, *J. Biol. Chem.* **128**: 665, 1939.

Grant 501, 1938: Arthur H. Smith, Wayne University College of Medicine, Detroit, \$200, serum proteins in relation to blood volume.

Grant 503, 1938: R. C. Robb, Syracuse University College of Medicine, \$800, diseases in twins.

Grant 504, 1938: Wallace M. Yater, Georgetown University Medical School, \$500, histopathology of "bundle branch" block.

Grant 505, 1938: Elizabeth S. Russell, Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Me., \$250, genetics of tumors in the fruit fly. See grant 455, 1937.

Grant 506, 1938: Harry Sobotka, Mount Sinai Hospital, New York, \$150, monomolecular layers of physically active substances.

Grant 507, 1938: Joseph H. Roe, George Washington University, \$500, vitamin C content of plant, animal and tumor tissue. See grant 562, 1939. Roe, Joseph H., and Hall, James M.: The Vitamin C Content of Human Urine and Its Determination Through the 2,4-Dinitrophenylhydrazine Derivative of Dehydroascorbic Acid, *J. Biol. Chem.* **128**: 329, 1939.

Grant 508, 1938: Louis N. Katz, Michael Reese Hospital, Chicago, \$250, factors influencing activities of the heart.

Grant 510, 1938: Erma A. Smith, Iowa State College, \$150, influence of various substances on gastrointestinal motility.

Grant 511, 1938: Charles W. Turner, University of Missouri, \$500, relation of thyrotropic hormone of anterior pituitary to pregnancy and lactation. See grant 449, 1937.

Grant 512, 1938: Barnes Woodhall, Duke University Hospital, \$350, reactions to implanted Shope rabbit papilloma by cerebral tissue. Woodhall, Barnes; Graves, Robert W., and Beard, J. W.: Experimental Production of Tumors of the Brain with the Shope Rabbit Papilloma, *Arch. Surg.* **38**: 457, 1939.

Grant 516, 1938: Charles O. Warren Jr., Cornell University Medical College, \$300, metabolism of bone marrow. See grant 558, 1939.

Grant 517, 1938: Irving J. Wolman, Children's Hospital of Philadelphia, \$170, lipid pneumonia. See grant 477, 1937.

Grant 518, 1938: Harold D. West, Meharry Medical College, \$100, synthesis of *D*-threonine. See grant 559, 1939.

Grant 519, 1938: D. B. Phemister and Harwell Wilson, University of Chicago, \$400, mechanism of blood pressure in sympathectomized dogs. See grant 550, 1939.

Grant 522, 1938: Ludwig A. Emge, Stanford University School of Medicine, \$500, relation of sex hormones to tumor growth.

Grant 524, 1938: Ernest Spiegel, Temple University, \$300, physicochemical factors influencing the excitability of the central nervous system.

Grant 526, 1938: Charles F. Code, University of Minnesota, \$400, metabolism of histamine.

Grant 527, 1938: Alexander Levy, University of Oregon Medical School, \$300, occlusion of the coronary arteries.

Grant 528, 1938: Frank Co Tui, New York University, \$150, relation between Schwartzman agent and pyrogen. See grant 451, 1937.

3. NO PUBLISHABLE RESULTS OBTAINED

Grant 397, 1936: R. F. Hanzal, Western Reserve University, \$150, source of endogenous uric acid and the effects of methylated xanthines on its secretion (refund, \$80.05).

Grant 398, 1936: George A. Emerson, West Virginia University, Morgantown, \$175, metabolic products of sympathomimetic amines (refund, \$48.68).

Grant 466, 1937: G. Louis Weller Jr., George Washington University, \$275, effect of sodium pyruvate and other substances on vitamin B deficiency (refund, \$104.78).

Report of Committee on Therapeutic Research

The Committee on Therapeutic Research, a standing committee of the Council on Pharmacy and Chemistry, encourages scientific investigations in the field of therapeutics by providing funds to be used in the prosecution of necessary research.

During the year 1939 the committee issued twenty-nine new grants. A detailed list of these grants, together with a list of publications during 1939 and of unexpired grants made before Jan. 1, 1939, will be found in the appended report.

The following is a list of the investigations conducted with the assistance of grants made by the Committee on Therapeutic Research, reports of which were published during 1939:

Morphine Addiction and Withdrawal: Effect of Calcium Therapy on Symptoms and Tissue Hydration, C. H. Thienes and L. E. Detrick: *J. Pharmacol. & Exper. Therap.* **66**: 36 (May) 1939.

Negative Effect of Chronic Morphine on the Anorexia Characteristic of Vitamin B₁ Deficiency, George R. Cowgill: *Proc. Soc. Exper. Biol. & Med.* **40**: 201 (Feb.) 1939.

The Magnitude, Adequacy and Source of the Collateral Blood Flow and Pressure in Chronically Occluded Coronary Arteries, Donald E. Gregg, John J. Thornton and Frederick R. Mautz: *Am. J. Physiol.* **127**: 161 (Aug.) 1939.

Diabetes in Rats and Its Alleviation with Sodium Chloride, James M. Orten and Henry B. Devlin: *Proc. Soc. Exper. Biol. & Med.* **42**: 632 (Nov.) 1939.

Yields of Stibines and Arsines, Joseph Seifter: *J. Am. Chem. Soc.* **61**: 530 (Feb.) 1939.

Pharmacology of Metal Alkyls: II. Trimethylstibine, Joseph Seifter: *J. Pharmacol. & Exper. Therap.* **66**: 366 (July) 1939.

The Pharmacology of Trimethyl Bismuth, Torald Sollmann and Joseph Seifter: *J. Pharmacol. & Exper. Therap.* **67**: 17 (Sept.) 1939.

Morphine as a Metabolic Stimulant, Henry G. Barbour, Janet A. Porter and Joyce M. Seelye: *J. Pharmacol. & Exper. Therap.* **65**: 332 (March) 1939.

The Depressant Action of Picrotoxin and Metrazol, James M. Dille and Lloyd W. Hazleton: *J. Pharmacol. & Exper. Therap.* **67**: 276 (Nov.) 1939.

Alkyl Nitrites: III. A Pharmacologic Study of a New Series of Organic Nitrates, John C. Krantz Jr., C. Jelleff Carr, Sylvan Forman and Fred W. Ellis: *J. Pharmacol. & Exper. Therap.* **67**: 187 (Oct.) 1939.

Alkyl Nitrites: IV. The Pharmacology of Isomannide Dinitrate, John C. Krantz Jr., C. Jelleff Carr, Sylvan E. Forman and Fred W. Ellis: *J. Pharmacol. & Exper. Therap.* **67**: 191 (Oct.) 1939.

Researches on Quinazolines: XLIV. The Synthesis of Some New Quinazoline Derivatives of Veratrole Akin to Alkaloids, Charles Arthur Fetscher and Marston Taylor Bogert: *J. Organic Chem.* **4**: 71 (March) 1939.

The Effect of Certain Barbiturates upon the Oxygen Uptake and Anaerobic Reduction of Methylene Blue by Rat Liver and Brain, Carla M. Zorn, Edward Muntwyler and O. W. Barlow: *J. Pharmacol. & Exper. Therap.* **66**: 326 (July) 1939.

The Termination of Pregnancy of Dogs by Gonadotropic Antihormone, K. W. Thompson: *Endocrinology* **24**: 613 (May) 1939.

Cytological Changes Induced in the Hypophysis by the Prolonged Administration of Pituitary Extract, A. E. Severinghaus and K. W. Thompson: *Am. J. Path.* **15**: 391 (July) 1939.

Experimental Infection in the Mouse Produced by Intratracheal Inoculation with an Atypical Pertussis Organism, William L. Bradford and Mary Wold: *J. Infect. Dis.* **64**: 118 (March-April) 1939.

Protective Value of Immune Rabbit Serum and Its Globulin Fraction Against Experimental Murine Infection with Haemophilus Pertussis, Henry W. Scherp, William L. Bradford and Mary Wold: *Proc. Soc. Exper. Biol. & Med.* **42**: 172 (Oct.) 1939.

Negative Chemotropism in Leukocytes, Morton McCutcheon, Dale Rex Coman and Harold M. Dixon: *Arch. Path.* **27**: 61 (Jan.) 1939.

Failure of Streptococcal Antibodies to Influence Chemotaxis of Leukocytes, Dale Rex Coman, Morton McCutcheon and Paul T. DeCamp: *Proc. Soc. Exper. Biol. & Med.* **41**: 119 (May) 1939.

Electrophoresis of Anterior Pituitary Proteins, Reginald A. Sibley, Kurt G. Stern and Abraham White: *J. Exper. Med.* **68**: 785 (June 1) 1939.

The Analeptic Potency of Sympathomimetic Amines, M. L. Tainter, L. J. Whitsell and J. M. Dille: *J. Pharmacol. & Exper. Therap.* **67**: 56 (Sept.) 1939.

Comparison of Different Types of Central Stimulation from Analgesics, J. W. Schulte, M. L. Tainter and J. M. Dille: *Proc. Soc. Exper. Biol. & Med.* **42**: 242 (Oct.) 1939.

Comparative Pressor Efficiency of Sympathomimetic Amines in the Normal State and in Decerebrate Shock, Catharine A. Crisman and M. L. Tainter: *J. Pharmacol. & Exper. Therap.* **66**: 146 (June) 1939.

Sympathomimetic Stimulants in Acute Circulatory Failure of Phenol Shock, M. L. Tainter, A. W. Footer and Harold Hanzlik: *Am. J. M. Sc.* **197**: 796 (June) 1939.

Local and Systemic Effects from Inhalation of Strong Solutions of Epinephrine, J. V. Galgiani, Frederick Proeschner, William Dock and M. L. Tainter: *J. A. M. A.* **112**: 1929 (May 13) 1939.

Effect of Sex Life upon Resistance to Nostal and Pentobarbital, Harold G. O. Holck and Lewis D. Fink: *J. Pharmacol. & Exper. Therap.* **66**: 18 (May) 1939.

Analysis of the Emptying of Segments of the Arterial Reservoir, Philip Dow and W. F. Hamilton: *Am. J. Physiol.* **127**: 785 (Nov.) 1939.

REPORTS OF OFFICERS

1919

- Differential Pressures in the Lesser Circulation of the Unanesthetized Dog, W. F. Hamilton, R. A. Woodbury and Elkin Vogt: *Am. J. Physiol.* 125:130 (Jan.) 1939.
- Effects of Repeated Anesthetic Doses of Barbiturates, Roberta Hafkesbring, Esther M. Greisheimer and H. Magalhaes: *J. Pharmacol. & Exper. Therap.* 66:95 (May) 1939.
- Electrical Studies on the Pharmacology of Autonomic Synapses: II. The Action of a Sympathomimetic Drug (Epinephrine) on Sympathetic Ganglia, Amedeo S. Marrazzi: *J. Pharmacol. & Exper. Therap.* 65:395 (April) 1939.
- The Sympathetic Central and Ganglionic Actions of Ephedrine, Amedeo S. Marrazzi: *J. Pharmacol. & Exper. Therap.* 66:24 (May) 1939.
- A Self-Limiting Mechanism in Sympathetic Homeostatic Adjustment, Amedeo S. Marrazzi: *Science* 90:251 (Sept. 15) 1939.
- Electrical Studies on the Pharmacology of Autonomic Synapses: III. The Action of Ephedrine Analyzed by a Study of Its Sympathetic Central and Ganglionic Effects, Amedeo S. Marrazzi: *J. Pharmacol. & Exper. Therap.* 67:321 (Nov.) 1939.
- Cardiovascular and Neuromuscular Changes Following Intravenous Injection of Magnesium Salts, H. E. Hoff, A. W. Winkler and P. K. Smith: *Am. J. Physiol.* 126:2537 (July) 1939.
- Calcium and Digitalis Synergism: The Toxicity of Calcium Salts Injected Intravenously Into Digitalized Animals, P. K. Smith, A. W. Winkler and H. E. Hoff: *Arch. Int. Med.* 64:322 (Aug.) 1939.
- Electrocardiographic Changes and Concentration of Magnesium in Serum Following Intravenous Injection of Calcium Chloride, H. E. Hoff, P. K. Smith and A. W. Winkler: *Am. J. Physiol.* 125:162 (Jan.) 1939.
- Electrocardiographic Changes and Concentration of Magnesium Salts, P. K. Smith and A. W. Winkler: *Am. J. Physiol.* 126:720 (July) 1939.
- Serum Following Intravenous Injection of Magnesium Salts, P. K. Smith, A. W. Winkler and H. E. Hoff: *Am. J. Physiol.* 126:720 (July) 1939.
- Factors Affecting the Toxicity of Potassium, A. W. Winkler, H. E. Hoff and P. K. Smith: *Am. J. Physiol.* 127:430 (Oct.) 1939.
- The Relation of Blood Pressure and Concentration in Serum of Potassium, Calcium and Magnesium, H. E. Hoff, P. K. Smith and A. W. Winkler: *Am. J. Physiol.* 127:722 (Nov.) 1939.
- The Effect of Fluidextract of Ergot and of Ergotamine on the Emptying Time of the Human Stomach, E. J. Van Liere and C. K. Sleeth: *J. Pharmacol. & Exper. Therap.* 67:250 (Oct.) 1939.
- Quantitative Determination of Selenium in Tissues and Feces—A Photometric Method, Ross A. Gortner Jr. and Howard B. Lewis: *Indust. & Engin. Chem.* 11:198 (April 15) 1939.
- The Retention and Excretion of Selenium After the Administration of Sodium Selenite to White Rats, Ross A. Gortner Jr. and Howard B. Lewis: *J. Pharmacol. & Exper. Therap.* 67:358 (Nov.) 1939.
- The Local Anticonvulsive Action of Calcium Salts, Reinhard Beutner: *Proc. Soc. Exper. Biol. & Med.* 42:547 (Nov.) 1939.
- Procaine Base Dissolved by Means of CO₂ and Its Mode of Action, Reinhard Beutner: *Proc. Soc. Exper. Biol. & Med.* 42:380 (Nov.) 1939.
- Some Effects Produced in the Normal Stomach by the Ingestion of Moderate and Massive Quantities of Aluminum Hydroxide Gel, J. P. Quigley, I. H. Einsel and I. Meschan: *J. Lab. & Clin. Med.* 24:485 (Feb.) 1939.
- Intralumen Pressures of the Pyloric Antrum and Duodenal Bulbs, I. Meschan, D. A. Brody and J. P. Quigley: *Am. J. Physiol.* 126:1584 (July) 1939.
- Exchanges of Substances in Aqueous Solution Between Joints and the Vascular System, Frederic W. Rhineland 2d, Granville A. Bennett and Walter Bauer: *J. Clin. Investigation* 18:1 (Jan.) 1939.
- Coronary Blood Flow in Dogs During Anoxia and Allied Conditions, Gerald T. Kent, R. Wegria and Harold D. Green: *Am. J. Physiol.* 126:1554 (July) 1939.
- Effects of Intracoronary and Intravenous Injections of Various Drugs on the Coronary Blood Flow, Norman H. Boyer, R. Wegria and Harold D. Green: *Am. J. Physiol.* 126:1440 (July) 1939.
- Certain Effects of Benzadrine, Coramine, Metrazol and Picrotoxin in Alcohol Depression, Harold W. Werner: *J. Pharmacol. & Exper. Therap.* 66:39 (May) 1939.
- Absorption of Ergot Alkaloids, R. P. Walton, J. B. Smith and F. M. Cook: *J. Pharmacol. & Exper. Therap.* 66:39 (May) 1939.
- Additional Experiments Relative to the Origin of Glycoside Emesis Using Cats and Dogs, Melvin Dresbach: *Am. J. Physiol.* 126:1417 (July) 1939.
- The Treatment of Ulcer of the Leg, Beverly Douglas: *Am. J. Surg.* 43:429 (Feb.) 1939.
- Advances in the Treatment of Everyday Wounds, Beverly Douglas: *South. M. J.* 32:1171 (Dec.) 1939.
- Concentrating Capacity of the Kidney as Revealed by Injection of Posterior Pituitary Extract, William G. Paine and Erwin E. Nelson: *Proc. Soc. Exper. Biol. & Med.* 42:729 (Dec.) 1939.
- Grants made in 1939:
- Grant 374: W. E. Hambourger, assistant professor of pharmacology, Western Reserve University School of Medicine, \$150, to investigate the pharmacology of the central nervous system.
- Grant 375: Joseph Seifter, Department of Pharmacology, University of Reserve University School of Medicine, \$250, to investigate the pharmacology of metal alkyls.
- Grant 376: R. W. Gerard, professor of physiology, Western Reserve University School of Medicine, \$200, to investigate the therapeutic effect of pyocyanin in schizophrania.
- Grant 377: Harold D. Green, assistant professor of physiology, Western Reserve University School of Medicine, \$250, to investigate the effects of the intravenous injection of various drugs on the coronary flow.
- Grant 378: Carl Pfeiffer, Department of Pharmacology, University of Chicago, \$200, to investigate the diuretic effect of organic mercurials.
- Grant 379: H. S. Rubinstein, Sinai Hospital, Baltimore, \$200, to investigate the effect of various hormones on spermatogenesis.
- Grant 380: M. L. Tainter, professor of pharmacology, Stanford University School of Medicine, \$250, to investigate sympathomimetic amines.
- Grant 381: Henry G. Barbour, associate professor of pharmacology and toxicology, Yale University School of Medicine, \$225, to investigate the effect of deuterium oxide on growth.
- Grant 382: Amedeo Marrazzi, Department of Pharmacology and Therapeutics, New York University College of Medicine, \$300, to investigate the action of members of the sympathomimetic group on sympathetic ganglions.
- Grant 383: Meyer Bodansky, professor of pathologic chemistry, University of Texas School of Medicine, \$200, to investigate the pharmacology of paraldehyde.
- Grant 384: William Bradford, associate professor of pediatrics, University of Rochester School of Medicine, \$300, to investigate pertussis.
- Grant 385: W. F. Hamilton, professor of pharmacology and physiology, University of Georgia School of Medicine, \$125, to investigate the vasomotor response of unanesthetized animals.
- Grant 386: Alrick B. Hertzman, associate professor of physiology, St. Louis University School of Medicine, \$500, to investigate peripheral circulation in man with the photoelectric plethysmograph.
- Grant 387: Harold C. Hodge, assistant professor of biochemistry and pharmacology, University of Rochester School of Medicine and Dentistry, \$250, to investigate the action of barbiturates by the use of the photoelectric colorimeter.
- Grant 388: H. E. Hoff, assistant professor of physiology, A. W. Winkler, instructor in medicine, and P. K. Smith, research assistant in pharmacology and toxicology, Yale University School of Medicine, \$250, to investigate the pharmacology and physiology of ions.
- Grant 389: David Marine, Montefiore Hospital for Chronic Diseases, New York City, \$200, to investigate iodine-bromine relations in the body.
- Grant 390: C. H. McDonald, professor of physiology and pharmacology, University of Arkansas School of Medicine, \$250, to investigate some aspects of cardiac metabolism.
- Grant 391: A. R. McIntyre, professor of physiology and pharmacology, University of Nebraska College of Medicine, \$100, to investigate the pharmacology and toxicology of citric acid and citrates from the and cardiac muscle and metabolism.
- Grant 392: Arthur H. Smith, chairman of the Department of Physiological Chemistry, Wayne University College of Medicine, \$200, to investigate the rate of absorption of citric acid and citrates from the intestine, and the relative significance of these compounds as precursors of liver glycogen.
- Grant 393: Arnold De M. Welch, Department of Pharmacology, Washington University School of Medicine, \$300, to investigate the pharmacology and their derivatives.
- Grant 394: Harold W. Werner, assistant professor of physiology and pharmacology, University of North Dakota Medical School, \$150, to investigate the effects of analeptics in alcohol depression.
- Grant 395: R. W. Whitehead, professor of physiology and pharmacology, University of Colorado School of Medicine, \$150, to investigate the effects of electrolytes in anaphylaxis.
- Grant 396: Reinhard Beutner, professor of pharmacology, Hahnemann Medical College, \$100, to investigate the toxicity of local anesthetics.
- Grant 397: G. O. Brown, professor of internal medicine, St. Louis University School of Medicine, \$250, to investigate the prevention and treatment of atherosclerosis.
- Grant 398: Esther M. Greisheimer, professor of physiology, Woman's Medical College of Pennsylvania, \$250, to investigate the effect of certain drugs on glycogen in the liver.
- Grant 399: R. H. Rigdon, associate professor of pathology, University of Tennessee Pathological Institute, \$150, to investigate the effect of sulfapyridine on staphylococcal toxin in mice.
- Grant 400: Harald Holck, associate professor of pharmacology, University of Nebraska College of Medicine, \$150, to investigate the relation of sex to drug action.
- Grant 401: Abraham White, assistant professor of physiologic chemistry, Yale University School of Medicine, \$200, to investigate the hormones of the anterior pituitary gland.
- Grant 402: Harry Beckman, professor of pharmacology, Marquette University School of Medicine, \$250, to investigate the prophylaxis of malaria.
- The following grants were issued before Jan. 1, 1939. In some cases the grants have expired and unexpended balances remain, or the work is not yet completed or not yet published:
- Grant 164: E. L. Jackson, associate professor of pharmacology, Emory University School of Medicine, \$200, to investigate the antagonism between sodium barbital and insulin.
- Grant 211: John G. Reinhold, Department of Public Health, Philadelphia General Hospital, \$250, to investigate the action of aminoacetic acid (glycine) in progressive muscular dystrophy.
- Grant 223: Clinton H. Thienes, professor of pharmacology, University of South-Lawrence E. Detrick, Department of Pharmacology, University of California School of Medicine, \$200, to investigate the heart phenomena in morphine addicted animals.
- Grant 232: George R. Cowgill, associate professor of physiologic chemistry, Yale University School of Medicine, \$250, to investigate the heart phenomena in vitamin B deficiency.
- Grant 236: C. W. Greene, professor of physiology and pharmacology, University of Missouri School of Medicine, \$100, to investigate the so-called specific coronary dilator drugs.
- Grant 238: Roy R. Kracke, professor of pathology, Emory University School of Medicine, \$250, to investigate the effect of the oxidation products of aminopyrine and related drugs on the leukocyte counts of rabbits.
- Grant 248: Fred C. Koch, chairman of the Department of Physiological Chemistry and Pharmacology, University of Chicago, \$250, to investigate the male sex hormone.
- Grant 249: J. Percy Baumberger, associate professor of physiology, Stanford University Department of Physiology, \$200, to investigate the occurrence and oxidation reduction potential of pigments in tumor cells.

Grant 251: Bernard Fantus, professor of therapeutics, University of Illinois College of Medicine, \$100, to investigate the titration of the antitoxic value of serum of patients who have received tetanus antitoxin.

Grant 261: Robert P. Walton, professor of pharmacology, University of Mississippi School of Medicine, \$100, to investigate the absorption of drugs through the oral mucosa.

Grant 263: H. A. Shoemaker, associate professor of biochemistry and pharmacology; C. E. Clymer, professor clinical surgery, and Henry H. Turner, University of Oklahoma School of Medicine, \$150, to investigate the blood cholesterol and iodine value in thyroid disease and their alteration by treatment.

Grant 264: Detlev W. Bronk, Johnson professor of biophysics, University of Pennsylvania School of Medicine, \$200, to investigate the action of various drugs on the autonomic centers.

Grant 278: William H. Lewis Jr., assistant clinical professor of medicine, and Arthur C. DeGraff, professor of therapeutics, New York University College of Medicine, \$150, to investigate the function of the heart in relation to age.

Grant 280: John P. Peters, professor of medicine, Yale University School of Medicine, \$200, to investigate by means of intravenous pyelography the state of the ureters and kidneys in a large series of patients after delivery and subsidence of acute signs of toxemia.

Grant 297: Melvin Dresbach, Harvard Medical School, \$250, to investigate the ennetic effect of some of the digitalis bodies.

Grant 298: Kenneth W. Thompson, Department of Physiology, Yale University School of Medicine, \$200, to investigate the effects of the thyroid stimulating hormone.

Grant 302: Mary E. Collett, Flora Stone Mather College, Western Reserve University, \$200, to investigate the effect of the female sex hormone on the hot flashes and the basal metabolism of ovariectomized women.

Grant 305: Beverly Douglas, assistant dean and associate professor of surgery, Vanderbilt University School of Medicine, \$250, to investigate the pneumatic (transparent rubber jacket) system of treating extensive wounds.

Grant 306: Edwards A. Park, professor of pediatrics, Johns Hopkins University School of Medicine, \$75, to investigate rickets in the rat and the effect of solution of parathyroid on the circulation of the bone.

Grant 307: Ephraim Shorr, assistant professor of medicine, Cornell University Medical College, \$200, to investigate methods of determining adequate dosage of corpus luteum hormone for the human being.

Grant 308: Claus W. Jungblut, professor of bacteriology, Columbia University College of Physicians and Surgeons, \$250, to investigate the relation of vitamin C to diphtheria.

Grant 311: Clarence P. Berg, assistant professor of biochemistry, State University of Iowa, \$250, to investigate amino acids.

Grant 314: F. C. Koch, chairman Department of Physiological Chemistry and Pharmacology, University of Chicago, \$250, to investigate provitamin D.

Grant 315: Erwin E. Nelson, professor of pharmacology, Tulane University School of Medicine, \$125, to investigate some actions of the pituitary.

Grant 316: Edward Van Liere, professor of physiology, West Virginia University School of Medicine, \$100, to investigate the action of various drugs on gastric motility.

Grant 327: Eben J. Carey, dean and professor of anatomy, Marquette University School of Medicine, \$250, to investigate the pharmacologic agents that influence the histologic signs of nervous action.

Grant 329: Roberta Hafkesbring, associate professor of physiology, Woman's Medical College of Pennsylvania, \$250, to investigate the effects of sodium barbital, sodium amylal and pentobarbital sodium on blood pressure, respiration and kidney function.

Grant 332: J. P. Simonds, department of pathology, Northwestern University Medical School, \$200, to investigate the selective activity of toxic substances on the kidneys.

Grant 333: Owen S. Gibbs, chief of Pharmacological Division, University of Tennessee College of Medicine, \$180, to investigate the toxicity of morphine and scopolamine on rats.

Grant 343: Morton McCutcheon, associate professor of pathology, University of Pennsylvania School of Medicine, \$150, to investigate chemotaxis, especially of leukocytes.

Grant 349: Garnett Cheney, associate clinical professor of medicine, Stanford University School of Medicine, \$250, to investigate vitamin K deficiency in chick hemophilia.

Grant 350: James T. Culbertson, assistant professor of bacteriology, Columbia University College of Physicians and Surgeons, \$300, to investigate sulfanilamide.

Grant 351: Eugene B. Ferris, assistant professor of medicine, University of Cincinnati College of Medicine, \$200, to investigate the administration of human serum.

Grant 355: Peter K. Knoefel, associate professor of pharmacology, University of Louisville School of Medicine, \$150, to investigate the action of amines, of the epinephrine series and of related substances on the central nervous system.

Grant 356: John B. Lagen, research associate in medicine, University of California Medical School, \$150, to investigate the potassium and sodium ions in the blood of asthmatic patients and in anxiety states.

Grant 357: William R. Lyons, assistant professor of anatomy, University of California Medical School, \$250, the standardization of lactogenic hormone.

Grant 358: R. J. Main, associate professor of physiology and pharmacology, Medical College of Virginia, \$100, to investigate the effects of epinephrine and amphetamine on alveolar carbon dioxide in man.

Grant 359: F. C. McLean, professor of pathology and physiology, University of Chicago, \$125, to investigate the effects of the growth hormone of the anterior pituitary lobe on the growth of long bones.

Grant 360: F. C. McLean, professor of pathology and physiology, University of Chicago, \$125, to investigate the mode of action of dihydrocholesterol (A. T. 10).

Grant 361: Sergius Morgulis, professor of biochemistry, University of Nebraska College of Medicine, \$100, to investigate the relationship between muscular dystrophy and gonadal atrophy.

Grant 362: James M. Orten, assistant professor of physiologic chemistry, Wayne University College of Medicine, \$150, to investigate the effect of copper and certain other inorganic salts on the hypoglycemic activity of insulin.

Grant 363: Louis A. Toth, Department of Physiology, Tulane University of Louisiana School of Medicine, \$160, to investigate the influence of low oxygen on urine secretion.

Grant 365: Harold W. Werner, assistant professor of physiology and pharmacology, University of North Dakota Medical School, \$250, to investigate the effects of stimulants on rabbits depressed with ethyl alcohol.

Grant 366: George W. Paff, Department of Anatomy, Long Island College of Medicine, \$75, to investigate the effect of digitalis on the heart.

Grant 367: Simon Benson, dean of pharmacy, Ferris Institute, \$100, to investigate the therapeutic effects of skin counterirritants.

Grant 370: Harald G. O. Holck, associate professor of pharmacology, University of Nebraska College of Pharmacy, \$250, to investigate the possible effect of aging on the strength of digitalis preparations.

Grant 371: H. N. Cole, clinical professor of dermatology and syphilology, Western Reserve University School of Medicine, \$75, to investigate arsenphenamine dermatitis.

Grant 372: Charles Weiss, associate professor of research medicine, University of California Medical School, \$200, to investigate the immunology of staphylococcal infections.

Grant 373: Morris Rosenfeld, associate in pharmacology and experimental therapeutics, Johns Hopkins University School of Medicine, \$400, to investigate the hormone of the posterior pituitary gland (an ultracentrifugal study).

TREASURER'S REPORT

Report of the Treasurer of the American Medical Association
for the Year Ending December 31, 1939

Investments (At Cost) as at January 1, 1939..\$2,421,204.25

Less:

Bonds Matured or Called..... 71,940.78

Investments as at December 31, 1939..... \$2,349,263.47

Balance for Investment January 1, 1939.....\$ 43,076.98

Interest Earned on Investments—Year 1939.. 84,938.91

Uninvested Funds December 31, 1939..... 128,015.89

Invested and Uninvested Funds as at December
31, 1939\$2,477,279.36

DAVIS MEMORIAL FUND

Balance in Fund January 1, 1939.....\$7,225.92

Interest Earned on Bank Balance—Year 1939.... 108.78

Funds on Deposit as at December 31, 1939..... \$ 7,334.70

HERMAN L. KRETSCHMER, Treasurer.

AUDITOR'S REPORT

January 30, 1940.

To the Board of Trustees,
American Medical Association, Chicago, Illinois.

Dear Sirs:

We have examined the Balance Sheet of the American Medical Association, Chicago, Illinois, as at December 31, 1939, and the Income Account for the year ended on that date, have reviewed the system of internal control and the accounting procedures of the Association and, without making a detailed audit of the transactions, have examined or tested accounting records and other supporting evidence, by methods and to the extent we deemed appropriate except as hereinafter stated.

The cash and bank balances have been confirmed by count or by certificates from the depositories.

The investments in U. S. Government and other marketable securities were confirmed by acknowledgment from the custodian, Continental Illinois National Bank and Trust Company of Chicago.

We did not independently confirm the accounts receivable by communication with the debtors. The accounts receivable were reviewed as to age and collectibility and, in our opinion, the balances are fully realizable. We reviewed the plan and system of control adopted for inventory taking but we did not observe the taking of the inventories nor did we make tests of the physical existence of the quantities recorded.

Expenditures charged to property and equipment accounts during the year, in our opinion, were properly capitalized as representing additions or improvements. The provision for depreciation for the year appears to be adequate.

REPORTS OF OFFICERS

VOLUME 114
NUMBER 19

In our opinion, the accompanying Balance Sheet and related statement of Income Account present fairly the position of the American Medical Association at December 31, 1939, and the results of the operations for the year, subject to the exceptions noted in paragraph four and the following observations:

(a) In accordance with the established practice of the Association, the accounts as stated do not include (a) unrecorded assets in respect of accrued interest on bond investments, and membership dues unpaid; and (b) provision for accrued property taxes for the year 1939, and sundry unpaid bills.

(b) Subscriptions paid in advance are stated at an estimated amount which is based on cash received in December 1939, on method used in prior years.

(c) Advance payments on publications include an estimated amount (\$124,528.90) for prepared subscriptions to HYGEIA, and the amount (\$27,030.44) received in advance for January, 1940, advertising, directory information sales and service.

(d) The buildings of the Association are carried at reproduction values as determined by an appraisal by Holabird and Root as at December 31, 1936, less depreciation accrued to the date of the Balance Sheet. The portion of the depreciation provision for the year applicable to the increase in book value which was recorded at December 31, 1936, as determined by the appraisal, has been charged against the complementary credit included in the Net Worth of the Association in that connection.

(e) We have received a letter from Messrs. Loesch, Scofield, Loesch and Burke, attorneys for the Association, regarding litigation pending against the Association or its officers at December 31, 1939, which states that the following lawsuits had been filed:

Dr. Jean Paul Ferncl—\$1,000,000.00 (libel)
Robert Wadlow—\$150,000.00 (libel)
Hirestra Laboratories, Inc.—\$3,000,000.00 (in equity,
and also at law)
Wm. E. Balsinger—\$100,000.00 (libel)
John R. Brinkley—\$250,000.00 (libel—under appeal)
United States of America (conspiracy in restraint of
trade—under appeal)

The attorneys state that in their opinion all of these suits will be defeated.

Fidelity insurance is carried against the undermentioned officers and employees, in the amounts stated:

Dr. Olin West, Secretary and General Manager.....\$10,000.00
Dr. Herman L. Kretschmer, Treasurer.....10,000.00
E. A. Hoffman, Cashier.....2,000.00
J. E. Hartigan, Assistant Cashier.....13,000.00
Sundry Employees (thirteen, \$1,000.00 each).....\$45,000.00
Total Fidelity Insurance

We have pleasure in reporting that the books are well maintained and that every facility was afforded us for the proper conduct of the examination.

Yours truly,
PEAT, MARWICK, MITCHELL & Co.

INDEX TO STATEMENTS

Balance Sheet, as at December 31, 1939.....	Exhibit "A"
Income Account, for the year ended December 31, 1939.....	"B"
Journal Operating Expenses, for the year ended December 31, 1939	Schedule "1"
Association and Miscellaneous Expenses, for the year ended December 31, 1939	"2"

EXHIBIT "A"

BALANCE SHEET AS AT DECEMBER 31, 1939

ASSETS:

Property and Equipment:		
Real Estate:		
Land—at less than cost (see note).....		\$ 288,773.98
Buildings—at reproduction cost new (as appraised by Holabird & Root at December 31, 1936), plus additions since at cost.....	\$1,313,530.42	838,803.40
Less—Reserve for Depreciation.....	474,727.02	1,127,577.38

Equipment—at cost:		\$403,187.38
Machinery		
Less—Reserve for Depreciation	251,862.47	151,324.91
Type and Factory Equipment	59,803.34	
Less—Reserve for Depreciation	45,271.68	14,531.66
Furniture and Office Equipment	163,384.36	
Less—Reserve for Depreciation	82,916.06	80,468.30
Chemical Laboratory	17,467.28	
Less—Reserve for Depreciation	8,902.89	8,564.39
Type Metal (based on physical inventory September 1, 1939).....	21,367.90	276,257.16
Total Property and Equipment.....		1,403,834.54

Investments—at Cost:

U. S. Government Securities.....	1,553,723.06	
Railroad, Municipal and Public Utility Bonds	795,540.41	2,349,263.47
Cash held by Treasurer for Investment.....		128,015.89
Cash in Bank and on hand.....		166,339.59

Accounts Receivable:

Advertising	72,882.09	
Co-operative Medical Advertising Bureau	14,226.54	
Reprints	3,406.33	
Payroll Taxes (Federal and State).....	79,058.22	180,238.09
Refund Claims filed or action pending	10,664.91	
Miscellaneous—Deposits, Advances, etc.....		95,242.79
Inventories of Materials, Supplies, Work in Progress, and Publications.....		100,190.48
Expenditures on Publications in Progress.....		6,574.35
Prepaid Expenses—Insurance, etc.....		\$4,429,699.20
Total		

Note: Book Value of Land was reduced \$40,000.00 as at December 31, 1933, by official action of Board of Trustees. This action was reported to House of Delegates.

LIABILITIES:

Accounts Payable:		
Co-operative Medical Advertising Bureau.....	\$ 15,367.29	
Miscellaneous	22,246.70	
Total Accounts Payable.....		37,613.99
Subscriptions Paid in Advance.....		195,494.90
Advance Payments on Publications.....		151,529.34
Net Worth:		
Association Reserve Fund.....	\$ 350,000.00	
Building Reserve Fund.....	400,000.00	
Retirement Reserve Fund.....	50,000.00	
Capital Account:		
Amount thereof as at December 31, 1938.....	\$3,048,652.01	

Add:		
Net Income for the year ended December 31, 1939	114,798.77	
Payroll Tax Refund		
Claims (Federal and State) applicable to year 1938	30,671.60	
Adjustment of Type Metal Account, resulting from Physical Inventory as at September 1, 1939.....	10,561.66	
	3,204,684.04	

Deduct—Amounts transferred during year to Building Reserve Fund (\$50,000.00) and Retirement Reserve Fund (\$25,000.00)

	75,000.00	3,129,684.04
Increase in Book Value of Buildings—per Appraisal	124,481.59	
Deduct—Depreciation applicable thereto for the years 1937 to 1939, inclusive	9,104.66	115,376.93
Net Worth, December 31, 1939.....		4,045,060.97
Total		\$4,429,699.20

EXHIBIT "B"
INCOME ACCOUNT

FOR THE YEAR ENDED DECEMBER 31, 1939

Journal:

Gross Earnings:	
Fellowship Dues and Subscriptions.....	\$ 751,882.02
Advertising	908,790.58
Jobbing	5,731.79
Reprints	686.26
Books	9,692.31
Insignia	5,234.24
Miscellaneous Sales	18,836.79
Gross Earnings from Journal.....	1,700,853.99
Operating Expenses—"Schedule "1".....	994,030.97
Net Earnings from Journal.....	706,823.02
Association Income:	
Income from Investments.....	\$ 84,938.91
Net Gain on Investments Sold or Called....	1,234.22
Miscellaneous Income	11,739.70
	97,912.83
Gross Income	804,735.85
Association Expenses—"Schedule "2".....	484,052.06
Miscellaneous Expenses—"Schedule "2".....	205,885.02
	689,937.08
Net Income	\$ 114,798.77

SCHEDULE "1"

JOURNAL OPERATING EXPENSES

FOR THE YEAR ENDED DECEMBER 31, 1939

Wages and Salaries.....	\$ 487,342.36
Editorials, News and Reporting.....	9,767.03
Paper—Journal Stock	224,813.66
Paper—Miscellaneous	4,549.09
Electrotype and Engravings.....	15,589.20
Binding	7,454.95
Ink	7,496.38
Postage—First Class	41,702.95
Postage—Second Class	64,721.94
Journal Commissions	17,634.21
Collection Commissions	787.06
Discounts	33,137.49
Express and Cartage.....	4,791.99
Exchange	2,145.55
Office Supplies	4,338.50
Telephone and Telegraph.....	3,427.54
Office Printing	13,496.99
Power and Light	10,391.06
Factory Supplies	13,585.84
Repairs and Renewals—Machinery.....	3,945.78
Insurance and Taxes	25,890.14
Building Expenses	42,671.18
Fuel	7,929.83
Payroll Taxes	148.59
Miscellaneous Operating Expenses.....	24,294.78
Bad Debt Losses, and Loss on Sale of Equipment—including Loss on Type Metal (\$873.12).....	1,225.76
	1,066,479.90

Depreciation (computed on diminishing
balances):

Building (cost basis).....	\$18,496.73
Machinery	7,964.47
Type and Factory Equipment.....	764.82
Furniture and Equipment.....	4,235.17
	31,461.19

Total	1,097,941.09
Deduct—Proportion of Overhead Expenses charged to other Publications and Departments.....	103,910.12

Total Journal Operating Expenses..... \$ 994,030.97

SCHEDULE "2"

ASSOCIATION AND MISCELLANEOUS EXPENSES

FOR THE YEAR ENDED DECEMBER 31, 1939

Association Expenses:	
Association	\$109,594.05
Health Education	38,425.48
Pharmacy and Chemistry.....	48,348.59
Chemical Laboratory	25,681.64
Medical Education and Hospitals.....	76,504.08
Therapeutic Research	6,807.06
Legal Medicine and Legislation.....	37,552.46
Bureau of Investigation.....	15,685.66
Bureau of Medical Economics.....	33,960.56
Council on Foods	22,905.13
Physical Therapy	18,182.86
Council on Industrial Health.....	11,019.06
Bureau of Association Exhibits.....	38,934.67
Laboratory Depreciation (5% on diminishing balance).....	450.76
Total Association Expenses.....	\$484,052.06

Miscellaneous Expenses:	
Legal and Investigation.....	\$131,420.48
Sundry Publications	74,464.54
Total Miscellaneous Expenses.....	\$205,885.02

REPORT OF THE JUDICIAL COUNCIL

To the Members of the House of Delegates of the American
Medical Association:

The problems coming before the Judicial Council during the past year have been largely organizational and have especially involved membership and Fellowship in the national body. Difficult situations arising because of wide variation in the qualifications and classifications of members existing in the constitutions of component and constituent societies have been referred to the Council and the attempt has been made to adjust them fairly within constitutional laws. It has not been possible always to do this under present by-laws.

THE NEED FOR UNIFORMITY IN BASIC
ORGANIZATIONAL LAWS

The plan under which the one essential organization of physicians in the United States was effected is, in practically all important particulars, similar to the form of government of the United States. The component county medical society is the basic element and is created by authorization of the constituent state or territorial association under charter. The constituent state and territorial medical associations constitute the federacy which is the American Medical Association. In accordance with established democratic principle, the component county societies are the judges of their own membership, which, when selected, constitutes the membership of the constituent state and territorial associations, and of the American Medical Association after the necessary procedures of reporting and enrolment have been completed in keeping with the provisions of organizational law.

It was originally and is now the intent of that law that the requirements for eligibility for membership and the procedures involved in the election of members should be uniform in nature in all counties, states and territories and that representation in our policy making and legislative bodies should be in strict accord with established democratic principles. It always has been the intent of our organizational law that jurisdiction should be definitely established and strictly observed, that the rights and privileges of membership should be clearly defined and faithfully preserved, that equal representation should be insured and that the objectives of all organizational units should be identical in nature. Nearly forty years ago the present plan of medical organization in the United States was effected, and through its operation an unequalled record of achievement has been made. Its essential soundness and effectiveness have been clearly demonstrated and the possibilities for further worthy accomplishment are clearly evident if the basic elements of the plan are preserved and if the same objectives are faithfully pursued.

As time has gone on there has developed a tendency toward the initiation of changes in the organizational laws of some component societies and constituent associations on an individual basis. This may represent an effort to meet new conditions created by social change or to deal with problems of a purely local and perhaps transient nature. It may mean progress, but it is possible that it may result in confusion and consequent weakening of the essential plan of organization under which the cause of scientific medicine has been so splendidly promoted.

The Judicial Council respectfully suggests that there is need for careful examination of the constitutions and by-laws of component societies and constituent associations and of the Constitution and By-Laws of the American Medical Association with a view to the preservation of all the proved sound principles of the present plan of organization as well as to the adoption of new sound principles that it may be desirable to adopt in order to meet new conditions.

MEMBERSHIP AND MEMBERSHIP CLASSIFICATIONS

The door to membership in the component county medical society is also the door to membership in the constituent state medical association and in the American Medical Association.

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It is reasonable to assume that any well qualified and ethical physician eligible for membership in a county society in one state should be eligible for membership in a county society in another state except as his eligibility might be affected by the provisions of state laws, but the fact is that the terms under which members are accepted are not uniform. In most instances it is required that applicants for membership in county societies shall be legally registered—not licensed—which they seek society membership. In some counties and states physicians who are not legally registered and who are taken into membership and—in such counties and states as other members who enjoy the same rights and privileges as other members who are licensed and registered. There may be serious question as to the wisdom of this procedure from the standpoint of society interest as well as from the standpoint of strictly legal considerations.

There is great lack of uniformity in the various membership classifications of county and state societies. Among these classifications are regular membership, active membership, associate membership, affiliate membership, honorary membership, retired membership, intern membership and nonresident membership. Definitions of these classifications are not uniform. Honorary membership in one society may be equivalent to retired membership in another, and there are similar differences with respect to other classifications. There is some lack of uniformity with respect to official procedures followed in submitting membership reports to the Secretary of the American Medical Association.

The Judicial Council respectfully suggests that constituent state and territorial associations and component county societies consider the possibility of adopting identical membership classifications and uniform procedures in reporting the names of those eligible for enrolment as members of the American Medical Association.

In this connection the Council desires to bring to the attention of the House of Delegates a matter of recent development that has been brought before it. It seems that certain specialty boards require that applicants for certification shall be members of the American Medical Association. There are many well qualified physicians not eligible for active membership in component and constituent societies who are associate members of such societies but are not reported for enrolment as members of the American Medical Association. Apparently these physicians are considered by some of the specialty boards as ineligible for certification. To many of these physicians the doors to membership and Fellowship in the American Medical Association are now closed and should be opened, or the sections amended to provide a place in organized medicine for such of them as by character and attainment have proved worthy. The Judicial Council recommends that it be directed by the House of Delegates to investigate further the conditions present in the matter of membership in the various component and constituent societies and in that of membership and Fellowship in the American Medical Association and to report, with recommendations, to the House of Delegates at the 1941 annual session.

REVISION OF THE CONSTITUTION AND BY-LAWS

The Judicial Council has given some thought to a general survey of the Constitution and By-Laws of the American Medical Association with a view to possible amendments or revision. While there are not many points of desirable change, there are a few sections which can be amplified to cover existing needs not now provided for and a few others which need clarification. The Judicial Council recommends that it be directed to continue its study and to report to the House of Delegates at the annual session in 1941.

REARRANGEMENT AND REWORDING OF THE PRINCIPLES OF MEDICAL ETHICS

For three or four years there has seemed to be a growing desire on the part of a number of the members of the Association to have the Principles of Medical Ethics revised by making

the principles more liberal, specific and explanatory and by excepting physicians from the application of some features or to abandon the Principles of Medical Ethics as being behind the times and outmoded. The subject has been presented in the House of Delegates several times during the past few years but without favorable recommendations by the reference committees to which resolutions were referred and without approval or acceptance by the House. At the annual session of the Association held in St. Louis in 1939, resolutions were presented to the House of Delegates and referred to the Reference Committee on Amendments to the Constitution and By-Laws and to the Judicial Council. The Council, not as a committee but for the purpose of furnishing information and advice, sat with the reference committee. The resolutions read as follows: "Resolved, That the Speaker of the American Medical Association appoint a committee of five Fellows of Medical Ethics and the form a committee to study the Principles of Medical Ethics for the purpose of ethics of the legal profession, having in mind of the code of ethics of our Principles of Medical Ethics for the rearrangement of our Principles of Medical Ethics for continuity, the rewording for clarity, the addition of a commentary following each principle to illustrate the intent and the quoting of relating decisions of the Judicial Council; and be it further Resolved, that this committee be directed to report its recommendations to the 1940 session of the House of Delegates of the American Medical Association." The report of the Reference Committee on Amendments to the Constitution and By-Laws, to which this resolution was referred, was as follows: "Resolutions on Rearrangement and Rewording of the Principles of Medical Ethics: Your reference committee feels that any proposed change in the Principles of Medical Ethics of the American Medical Association is a matter for serious consideration and that such a study as the resolutions demand should be done by a body of the American Medical Association which has to do with the administration of the Principles of Medical Ethics in the last analysis. Your reference committee therefore recommends that these resolutions offered by the California delegation be referred to the Judicial Council for study and that the Judicial Council report to the House of Delegates its conclusions at the session of 1940."

Attention is usually called by those who seek a rewriting of the Principles of Medical Ethics to the fact that the present principles were formulated in 1903 and that times have changed since then. The argument is presented that, to keep up with progress in other fields of endeavor as well as with the science of medicine, the ethics of medicine should change and become up to date. It is either forgotten or not realized by these advocates of change that the Principles of Medical Ethics is but a statement of the underlying principles of conduct which apply to the relations of every physician with his patients, with the public and with his fellow doctors of medicine. The principles are not laws to govern actions in detail but to guide conduct. The basic principle underlying all the ramifications of a doctor's professional life is stated in the opening sentences of the published Principles of Medical Ethics: "A profession has for its prime object the service it can render to humanity; reward or financial gain should be a subordinate consideration. The practice of medicine is a profession. In choosing this profession an individual assumes an obligation to conduct himself in accordance with its ideals." That has been the basic principle of medical ethics since the time of Hippocrates. Medicine's methods of practice may change, its economics may change, its science may change but its principles of ethics do not change any more than do the basic principles of the Christian religion. Government and law may disrupt and negate the operation of our Principles of Medical Ethics for a time or in part but it always will remain the principles of right conduct for our profession and will prevail just as long as government and law permit. The Judicial Council has had a large correspondence with physicians seeking information concerning ethical problems. Many of them evidently have not been trying to be ethical but have been seeking to discover by some means, such as sophisticated reasoning or hair-splitting verbiage, how far from ethical principles they can go and still be considered ethical.

Such physicians are trying to fit the Principles of Medical Ethics to an action they desire to take rather than to fit their action to the Principles.

The Judicial Council does not believe that the present wording and arrangement of the Principles of Medical Ethics cannot be improved, but it does believe that the present is not the time to do the rewriting. There is at present so much turmoil in medical organization and its relation to government that it seems wise to let the muddled waters settle before any consideration is given to so fundamental a feature of our organization as our Principles of Medical Ethics.

Meanwhile, any one seeking information or explanation concerning our present published Principles of Medical Ethics can find such analysis in the American Medical Association's publication by the Bureau of Medical Economics entitled *Economics and the Ethics of Medicine*.

PATENTS AND PERQUISITES

At the St. Louis session the Board of Trustees in a supplementary report to the House of Delegates discussed the subject of medical patents. On recommendation of the Reference Committee on Legislation and Public Relations the matter was referred to the Judicial Council. The Principles of Medical Ethics, chapter III, article I, section 5, declares it to be "unprofessional to receive remuneration from patents for surgical instruments or medicines." The result of this prohibition has been, at times, to prevent or deter the manufacture and sale of an instrument or medicine of use and value to a patient to such a degree that its availability to a patient becomes a matter of undue hardship or an impossibility. This direct prohibition of the receipt of any remuneration from a patent by a physician does not prohibit the act of patenting but does distinctly prevent an ethical physician from obtaining any monetary return because of the patent. The section is one of the very few sections in the Principles of Medical Ethics which is a distinct law rather than a statement of a principle. Patents in general, whether in industry, science or medicine, have been under national discussion for several years in the attempt to solve the problems of the many difficulties in research because of them. Up to the present time, no satisfactory solution has been found. Underlying patents have frequently been found to exist by research organizations after much time and money has been spent, vitiating all the work of the organization unless a license can be obtained from the original patentee. Ten years ago at the direction of the House of Delegates the Judicial Council made an extensive survey of professional opinion in the United States as to the advisability of change in the section covering patents and found the majority opinion advising against such change. This past year the Council has had a number of letters of inquiry and of protest.

The Judicial Council has given extended consideration as to how to maintain the principle of benefit to humanity as the prime consideration in our Principles of Medical Ethics and at the same time to satisfy the reasonable demand that a physician, having given time and money for the benefit of humanity, shall be permitted to protect himself against exploitation by others and to receive reimbursement for his expenditure.

Not only are surgical instruments, appliances and medicines patentable but methods or processes also may be patented. It is in this field of research that the greatest harm to the principle of the benefit to humanity exists and the greatest difficulties to be overcome are found.

Although the Judicial Council has spent many hours and many words over the problem, the Council is not ready as yet to report to the House of Delegates, but it hopes that such progress has been made as will permit the submission of a supplementary report during this annual session.

Respectfully submitted.

GEORGE EDWARD FOLLANSBEE, Chairman.
WALTER F. DONALDSON.
HOLMAN TAYLOR.
JOHN H. O'SHEA.
EDWARD R. CUNNIFFE.

REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

To the Members of the House of Delegates of the American Medical Association:

1. *Practice of Medicine in Hospitals by Radiologists, Pathologists, Anesthetists and Physical Therapists.*—In response to resolutions adopted by the House of Delegates at San Francisco, the Council desires to report that the Inter-Society Committee on Economics of Radiology has prepared a study of the financial relationships between radiologists and hospitals which appears to cover this subject adequately so far as radiology is concerned. Owing to the pressure of work in connection with the National Health Program and similar activities, the Bureau of Medical Economics and the Council on Medical Education and Hospitals are not yet in a position to make a final report on the practice of pathology, anesthesia and physical therapy.

2. At the meeting of the Association of American Medical Colleges in Cincinnati, Oct. 23-25, 1939, following vigorous criticism of the Council on Medical Education and Hospitals by Dr. B. C. MacLean, director, Strong Memorial Hospital, Rochester, N. Y., Dr. Robin C. Buerki, director of study, Commission on Graduate Medical Education, Chicago, and Dr. Willard C. Rappleye, dean, Columbia University College of Physicians and Surgeons, New York, it was voted that the medical colleges should establish independently of the Council their own machinery for the investigation and classification of internships.

In the light of these efforts on the part of other organizations to assume the functions which for thirty-five years have been performed by the Council on Medical Education and Hospitals of the American Medical Association, it would seem to be desirable that the House of Delegates should at this time clearly indicate to the public and to the medical profession what are its responsibilities in the field of medical education and what are the channels through which these responsibilities are to be discharged.

3. During the past year the Council has lost three members of its field staff. Dr. Stuart P. Cromer resigned to become dean of the University of Arkansas School of Medicine. Dr. Oswald N. Andersen accepted a call to become assistant superintendent of the Barnes Hospital in St. Louis. Dr. Hamilton H. Anderson accepted an appointment as professor of pharmacology in the Peiping Union Medical College in China.

4. *Current Activities of the Council.*—A. Undergraduate medical education: (a) In conformity with the action taken by the Canadian Medical Association at Halifax in June 1938, the Council voted at its meeting on May 13, 1939, that after Jan. 1, 1945, the Canadian medical schools will be included in the Council's classification of medical schools only at their own request.

(b) Since the Council recommended in 1938 that the minimum requirement for admission to medical schools should be three years of college work and since in 1939 2.1 per cent of all candidates accepted had actually completed three years or more in college, the Council voted at its meeting Dec. 10, 1939, to omit from its list of accredited colleges those institutions which are unable to satisfy this requirement.

B. Graduate medical education: (a) One of the most important and extensive phases of graduate medical education is that which deals with the preparation of specialists and which is carried on very largely through institutional apprenticeships. The Council has for many years listed residencies in the specialties which offer a satisfactory program of instruction. Last year this list was broadened so as to include similar opportunities designated as fellowships. Since we now have certifying boards in most of the specialties of medicine, it is obvious that instruction in these fields must be of such a character as to satisfy the requirements of the certifying boards.

(b) During the past year the Council has undertaken a program of cooperation with the various specialty boards looking toward the establishment of uniform standards in the field of graduate medical education and the elimination of unnecessary

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duplication in the inspection of hospitals which undertake to train residents in the various specialties. Negotiations have already been completed or are under way with the following boards:

American Board of Anesthesiology.
American Board of Dermatology and Syphilology.
American Board of Internal Medicine.
American Board of Obstetrics and Gynecology.
American Board of Orthopaedic Surgery.
American Board of Pathology.
American Board of Pediatrics.
American Board of Psychiatry and Neurology.
American Board of Radiology.
American Board of Urology.

Official information is secured from hospitals on forms printed in triplicate so that one copy may be retained by the institution, one copy by the Council and one by the special examining board concerned. The actual inspection of the hospitals is carried out by members of the Council's staff. Copies of the reports of these inspections are likewise transmitted to the examining boards. It is expected that, in the final evaluation of residencies and fellowships, the conclusions of the Council and of the boards will be identical so that it may be said that any institution approved by the Council will be equally acceptable to the specialty boards.

5. A. Publications.—Since the last annual session the Council has contributed to the following special numbers of THE JOURNAL:

Medical Education, Aug. 26, 1939.
Hospital Facilities for the Care of Tuberculosis, March 2, 1940.
Hospital Service in the United States, March 30, 1940.
Medical Licensure, April 27, 1940.

B. At the St. Louis session of the American Medical Association an abstract was presented of the Council's survey of "Hospitals and Medical Care in Mississippi." The completed report of that study was published and may be found in the Proceedings of the House of Delegates for the 1939 session.

C. In January of this year the Council was able to publish a report prepared by Dr. Herman G. Weiskotten, dean of Syracuse University; Rev. Alphonse M. Schwitalla, S.J., dean of St. Louis University School of Medicine; Dr. William D. Cutter, Secretary of the Council, and Dr. Hamilton H. Anderson of the staff of the Council, covering the Survey of Medical Schools which was begun in 1934. This book has been widely distributed and has elicited favorable comment.

D. The Council has completed a survey of one portion of the field of graduate medical education; namely, that phase which offers to practitioners opportunities for instruction in localities which are of no great distance from their homes. A report of this study, which was conducted by Dr. Hamilton H. Anderson, was published in March and copies will be available at the New York session.

6. Intern Health.—At the request of the Board of Trustees, a survey has been made of the health of interns. Hospitals were asked to report the number of interns who during a three year period were obliged to discontinue their service on account of ill health, and also the corresponding number of those who were obliged to discontinue their service on account of tuberculosis. The final analysis of these data will very likely be available at the time of the annual session.

7. It is a satisfaction to record that during the past year conferences have been held between the Board of Trustees of the American Medical Association and the Board of Regents of the American College of Surgeons, and also between members of the staff of the Council on Medical Education and Hospitals and the administrative staff of the American College of Surgeons. These conferences have resulted in closer cooperation and collaboration in the collection and publication of hospital statistics. In the Hospital Number of THE JOURNAL (March 30), for example, those institutions which have satisfactorily met the standards of the American College of Surgeons have been indicated by an appropriate symbol.

8. On Nov. 9-10, 1939, the State Department of the federal government, through its Division of Cultural Relations, called

a conference in Washington to discuss the opportunities for promoting the exchange of educational advantages between the United States and other American republics. To this end a Continuation Committee was appointed and a special subcommittee dealing with the field of medicine and public health was created under the chairmanship of General Hugh Cumming, director of the Pan American Sanitary Bureau. Of this committee the Secretary of the Council on Medical Education and Hospitals is a member. The Secretary attended a meeting of this Continuation Committee in Washington on March 8, 1940.

9. Under the auspices of the American Council on Education, a Conference on Accrediting was held in Washington, April 7 and 8, 1939. The whole program and philosophy of accrediting was arraigned by Chancellor Samuel P. Capen of the University of Buffalo and President J. J. Tigert of the University of Florida. However, there seemed to be a general acceptance of the opinion that in those professions which have responsibility for public health the accrediting of professional schools is a necessary auxiliary to the licensing function of the states.

10. Medical Education.—Comment: A. Dr. Stuart P. Cromer, formerly a member of the field staff of the Council on Medical Education and Hospitals, has been appointed dean of the University of Arkansas School of Medicine.

B. Rush Medical College of the University of Chicago is apparently about to discontinue its program for undergraduate medical education. It has been announced that after Oct. 1, 1940, no more candidates for the degree of Doctor of Medicine will be accepted.

C. The University of Illinois has created a new position, that of executive dean, who will be directly responsible to the president for the conduct of the professional schools located in Chicago. Dr. Raymond Allen, formerly dean of Wayne University College of Medicine, Detroit, has been chosen to fill this position.

D. Harvard Medical School reports that the Department of Pharmacology has been completely reorganized and that a university committee has been created consisting of Dr. Fuller Albright, Dr. Henry K. Beecher, Dr. C. Sidney Burwell ex officio, Dr. Walter B. Cannon, Dr. William B. Castle, President James B. Conant ex officio, Dr. Louis F. Fieser, Dr. A. Baird Hastings, Dr. Frederick L. Hisaw, Dr. Otto Krayer, Prof. Reginald P. Linstead and Dr. Soma Weiss, chairman.

E. Wake Forest College, as a result of a large gift from the trustees of the Bowman Gray Fund, is about to establish in Winston-Salem a four year medical school.

F. The University of Vermont has appointed as dean of the College of Medicine Dr. Hardy A. Kemp, formerly professor of bacteriology and preventive medicine at Baylor University College of Medicine.

G. After a long and bitter controversy over the reorganization of the Gallinger Municipal Hospital in Washington, D. C., an agreement has finally been reached with the health commissioner, Dr. George C. Ruhland, and Georgetown University School of Medicine and George Washington University School of Medicine which seems to eliminate the causes of friction and promises better care for patients in the hospital.

H. It is a satisfaction to record also that an agreement has been reached between the United States Department of the Interior and the trustees of Howard University, Washington, D. C., whereby the Freedmen's Hospital, Washington, would be available for the teaching of medical students on more satisfactory terms.

11. Scottish Medical Students.—In recent years a large number of Americans have been enrolled as medical students in the so-called extramural schools of Scotland. The outbreak of the war and the refusal of the State Department to furnish passports left a considerable number of these students in this country with little or no prospect of being able to complete their professional education. A representative of this group appeared before the Council at its meeting on Dec. 10, 1939, and urged that some steps be taken to provide the desired opportunities in

American schools. The position of the Council is stated in the following resolution:

Resolved, That, because of the lack of information regarding the quality of instruction in the Scottish medical schools, the Council on Medical Education and Hospitals of the American Medical Association believes that the question of accepting transfers from these institutions is a matter which should be left to the consideration of the individual medical schools of this country.

At a later date the State Department modified its ruling and issued passports to those students who would be able to complete the medical course next summer.

12. *Schools of Osteopathy*.—When the Council undertook its survey of medical schools in 1934, it attempted to include in its study also colleges of osteopathy. These colleges, however, refused to permit visitation by a representative of the Council, alleging that their activities were already supervised by the Bureau of Professional Education and Colleges of the American Osteopathic Association. Consequently, it has been impossible for this Council to secure first hand and official information concerning most of the schools of osteopathy. However, the Kansas legislature, through its Public Health Committee, undertook to make an investigation of the teaching of osteopathy and invited representatives of the medical and osteopathic professions to participate with them in this investigation. Thereupon the Legislative Committee of the Kansas State Medical Society invited the Secretary of the Council on Medical Education and Hospitals to act as one of its representatives during the visit to the Kirksville College of Osteopathy. It was found that the laboratory and clinical facilities of the college were grossly inadequate and that the faculty fell far short of meeting the accepted standards in respect to both numbers and competence.

13. From Feb. 1, 1939, to Jan. 31, 1940, 363 hospitals were visited as follows:

For approval of internships.....	108
For approval of residencies and fellowships.....	64
For approval of internships and residencies.....	59
For registration	132
Total residencies and fellowships inspected...	436

During this period 230 hospitals were registered, 132 were closed or withdrawn from the Register and thirty-nine were refused registration.

There are 6,226 hospitals registered having a bed capacity of 1,195,026, 58,764 bassinets, 9,879,244 admissions and an average daily census of 996,483.

Hospitals approved for internships number 736, with 7,998 available internships. The number of vacancies in approved intern hospitals on Dec. 31, 1939, was 344.

Hospitals approved for residencies number 555 having a total of 4,709 residencies available.

In addition to the visitation of hospitals, inspections were made of nineteen schools of laboratory technic.

On Jan. 31, 1940, there were 154 schools of laboratory technic approved by the Council, sixteen schools offering courses in physical therapy and six schools of occupational therapy.

Respectfully submitted.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS.

RAY LYMAN WILBUR, Chairman.
J. H. MUSSER.
FRED MOORE.
REGINALD FITZ.
FRED W. RANKIN.
CHARLES GORDON HEYD.
FRANK H. LAHEY.
WILLIAM D. CUTTER, Secretary.

REPORT OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

To the Members of the House of Delegates of the American Medical Association:

The Council on Scientific Assembly has given official consideration to all matters which have demanded its attention during the year covered by this report. The usual meetings of the Council have been held, and the annual conference of the Council with the section secretaries took place in Chicago in November.

REQUESTS FOR CREATION OF NEW SECTIONS

From time to time the Council on Scientific Assembly has considered suggestions and requests for additional sections of the Scientific Assembly but has felt that, with the fifteen established sections through which programs of high quality have been presented at each annual session for many years and the Section on Miscellaneous Topics through which numerous special programs have been presented, it would be inadvisable to increase the number of sections.

There has been for some years an insistent demand for the establishment of a section of the Scientific Assembly that would represent the general field of anesthesia. The Council has given this matter long and careful consideration and is disposed to offer a recommendation to the House of Delegates favorable to the creation of such a section. At a later time the Council will submit a supplementary report dealing with this matter.

The Council has considered suggestions to the effect that the name of the Section on Pharmacology and Therapeutics be changed and that it be called the Section on Experimental Medicine. This matter was considered at length at the November meeting of the Council, and during the discussion it was proposed that the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology be combined to form a Section on Experimental Medicine. This proposal has been submitted to the secretary of each of the sections concerned with the request that it be fully considered by these sections during the New York session of the Association, and that the action which may be taken by each of the sections be reported to the Council with the possibility in view that a definite recommendation might be submitted to the House of Delegates at its 1940 session or at the time of the next annual session.

THE SCIENTIFIC PROGRAM

The official program of the New York session is submitted as a part of the report of the Council on Scientific Assembly. It will be noted that the innovation effected at the St. Louis session whereby a part of the program of the General Scientific Meetings was contributed by physicians residing in St. Louis has been continued this year and one section of the program of the General Scientific Meetings is composed entirely of contributions from physicians of New York. The program presented by local physicians at the St. Louis session was very favorably received, and the members of the Council believe that the arrangements whereby physicians who are residents of the city in which an annual session is held will compose a part of the annual scientific program will work out to fine advantage.

Another change in the form of the scientific program at the last annual session, providing for panel discussions at the General Scientific Meetings and in some of the section meetings, appears to have met with general favor, and it is the purpose of the Council to attempt to develop to a greater extent in future years programs of this general type.

At the proper time, the Council on Scientific Assembly will submit to the House of Delegates nominations for Affiliate Fellowship in the American Medical Association.

The Council would express its grateful appreciation of the faithful and efficient service of the officers of the sections of the Scientific Assembly, and especially of the secretaries of the sections, who bear the brunt of the work entailed in the compilation of the section programs. The Council also wishes to extend its thanks to all those who will appear as contributors to the program of the General Scientific Meetings and to the programs of the scientific sections.

Respectively submitted.

JAMES E. PAULLIN, Chairman.
A. A. WALKER.
SAMUEL P. MENGEL.
CLYDE L. CUMMER.
J. GURNEY TAYLOR.
NATHAN B. VAN ETEN,
President-Elect.
MORRIS FISHEIN,
Editor, THE JOURNAL.
OLIN WEST, Secretary.

Ex officio.

ORGANIZATION SECTION

AN ANALYSIS OF THE WAGNER-GEORGE HOSPITAL CONSTRUCTION BILL AS REPORTED TO THE SENATE

PREPARED BY THE BUREAU OF LEGAL MEDICINE AND LEGISLATION, AMERICAN MEDICAL ASSOCIATION

The Senate Committee on Education and Labor reported the Wagner-George hospital construction bill, S. 3230, to the Senate April 30, recommending that all after the enacting clause of the bill be stricken and suggesting substitute provisions drawn partly from the original bill, partly from recommendations made to the committee at the hearing recently conducted on that bill, and partly from Senator Taft's hospital construction plan.

The reported bill proposes a six year program for providing needed hospital facilities. To assist states, counties, health and hospital districts and other political subdivisions of the states to provide better health and medical services through the construction, improvement and enlargement of needed hospitals, especially in rural communities and economically depressed areas, the bill authorizes to be appropriated to the United States Public Health Service (1) \$10,000,000 annually for six years, beginning with the fiscal year ending June 30, 1941; (2) annual appropriations of \$500,000 for six years for administrative expenses; (3) for each of the five fiscal years beginning with the fiscal year ending June 30, 1947, such sums as may be necessary for hospital maintenance grants under the act, and (4) such sums as may be required by the Public Health Service, after the initial six year period, for necessary expenses in administering such provisions of the act as may then be in operation, as, for example, those relating to grants for maintenance. All amounts authorized to be appropriated are to remain available until expended.

DEFINITIONS

The term "hospital" as used in the reported bill includes "health, diagnostic and treatment centers, the equipment thereof, and facilities relating thereto." The term "hospital project" includes the construction, improvement or enlargement of a hospital. The term "state" includes the territories and insular possessions of the United States and the District of Columbia.

TWO CONSTRUCTION PLANS CONTEMPLATED

The program contemplates two plans for the construction of hospital projects. Plan I relates to hospital projects to be undertaken under the appropriation of \$10,000,000 for the fiscal year ending June 30, 1941. Plan II proposes a different construction program to be carried out from the annual federal appropriations of \$10,000,000 for five fiscal years beginning July 1, 1941.

HOSPITAL CONSTRUCTION PLAN I

During the fiscal year ending June 30, 1941, the program contemplates that any state, county, health or hospital district or other political subdivision of a state desiring to participate in the benefits of the bill shall apply to the Surgeon General of the Public Health Service, through the state health authority.

Contents of Application.—Each application must contain information necessary (1) to established the need, in addition to existing public and private hospitals, for the hospital project to which such application relates

and (2) to satisfy the Surgeon General that the hospital (a) will be made available, under appropriate conditions and to the extent of the hospital facilities, to every person residing in the territorial area of the applicant for such hospital, (b) will be maintained in good repair and (c) will be utilized in furnishing service of satisfactory quality, in accordance with standards from time to time prescribed by the state and approved by the Surgeon General or, prior to the effective date of such standards, in accordance with standards prescribed by the Surgeon General.

Approval of Application.—This application must first be approved by the National Advisory Hospital Council to be created under the provisions of the bill. If an application has been approved, the Public Works Agency is to be authorized to construct the hospital.

Lease of Hospital.—After completion of a hospital, the Surgeon General is authorized to lease it to the applicant, the title to such leased hospital, to the equipment installed therein by the United States and to the land on which such facilities are located to remain in the United States until divested by conveyance as authorized by the act or as otherwise authorized by law. Any such lease may be terminated only (1) on mutual consent or (2) on conveyance of the hospital to the lessee or (3) if the Surgeon General finds that the lessee has failed substantially to comply with any applicable rule or regulation of the Surgeon General or with any provision in the lease.

Each lease must contain a provision requiring the lessee to yield up the premises and equipment at the termination of the lease in the same condition as the premises and equipment were received, reasonable wear and tear excepted, and may contain such other provisions not inconsistent with the act as are prescribed by the Surgeon General, including requirements with respect to additions to the premises and equipment leased.

Conveyance of Leased Hospital.—On recommendation of the Surgeon General, based on satisfactory operation of a hospital by the lessee, the Federal Security Administrator "may convey such hospital to the lessee thereof, and he shall make such a conveyance in any case in which the Surgeon General finds that any such lessee has operated any such hospital in accordance with the terms of his lease and the rules and regulations promulgated under this act for sixty consecutive months."

Operation of Hospital After Lease Cancelled.—The bill does not disclose the manner in which a hospital is to be operated if for any reason a lease is cancelled.

HOSPITAL CONSTRUCTION PLAN II

From the appropriations to be made available during the second, third, fourth, fifth and sixth year of the program, it is contemplated that grants will be made to states, counties, health or hospital districts or other political subdivisions of a state, to aid in defraying the cost of constructing needed hospital facilities.

State Plan Required.—No federal money to be made available during these five years, for construction or maintenance purposes, may be used in any state unless that state has submitted to the Surgeon General "state plans for constructing, improving, or enlarging needed hospitals." Such a plan must specify (a) the location, character, adequacy and methods of operation of the existing public and private hospitals in the state, (b) the type, size and location of any additional hospitals that may be needed and (c) such other information with respect to such existing hospital and additional needed hospitals as the Surgeon General may require.

Contents of Application.—In addition to the information required of an applicant under construction plan I, an application under plan II must contain (1) a description of the site for the project, (2) preliminary plans and specifications therefor and (3) assurance that title to the site is, or will be, vested solely in the applicant.

Approval of Application and Determination of Amount of Federal Grant.—After an application under plan II has been approved by the Surgeon General (plan I requires approval of an application by the National Advisory Hospital Council) that official, after proper investigation, will determine the amount of the grant to be made, "which grant shall not be less than twenty-five per centum, nor more than ninety per centum of the cost of such hospital project and equipment therefor," the percentage being determined after taking into consideration, if the applicant is a state, its financial resources as measured by the per capita income accruing to the inhabitants thereof, and, if the applicant is other than a state, such financial resources of the state in which the applicant is located and the financial condition and ability of the applicant. The applicant must submit satisfactory proof of ability to pay its share of the cost of such project and equipment. Grants are to be made available to an applicant in such instalments as are recommended by the Federal Works Administrator, who is to be authorized to make such inspections of the hospital during its construction as he deems necessary.

Title to Hospital Constructed Under Plan II.—It is contemplated that the federal government shall acquire no title to hospitals constructed under plan II.

GRANTS FOR MAINTENANCE

With respect to hospital projects constructed under either plan I or plan II, on recommendation of the Surgeon General, the Federal Security Administrator may authorize grants for maintenance during the first five years of operation of the project. In making his recommendation the Surgeon General will, it is contemplated, take into consideration the financial ability of the applicant to maintain the hospital. If a mental hospital, the grant for maintenance may not exceed \$150 per bed for the first year, \$120 for the second year, \$90 for the third year, \$60 for the fourth year and \$30 for the fifth year. If other than a mental hospital, such grant may not exceed \$300 a bed for each of the first two years, \$240 for the third year, \$180 for the fourth year and \$120 for the fifth year.

The Federal Security Administrator may refuse to continue or may reduce maintenance grants if the Surgeon General finds that a hospital project has not been

operated in substantial accordance with rules and regulations promulgated under the act or in accordance with the terms of a lease.

NATIONAL ADVISORY HOSPITAL COUNCIL

The National Advisory Hospital Council will consist of the Surgeon General of the Public Health Service as chairman and eight members appointed by the Surgeon General with the approval of the Federal Security Administrator, selected from leading medical or scientific authorities who are outstanding in matters pertaining to hospitals and other public services. Each appointed member will receive \$25 a day during the time spent on official business and in addition expense allowances.

The Council is to be authorized, in addition to approving applications under plan I, "to advise" the Surgeon General with reference to the carrying out of the provisions of the act, including (1) standards which are necessary to insure the construction of proper buildings and the securing of proper equipment; (2) the method by which hospital personnel may be best trained; (3) standards and principles to be considered in connection with any state plan; (4) standards which are necessary to insure proper administration of the hospitals constructed under the act, and proper care of persons served by the hospitals; (5) standards to be considered in determining the need for hospital projects for which applications are submitted and in determining whether such projects will be adequately maintained and will otherwise fulfil the requirements of the act; (6) procedures for securing reports and for making inspections with reference to professional service in and standards of maintenance of hospitals constructed under the act, and (7) standards for making certain other determinations.

UNITED STATES PUBLIC HEALTH SERVICE

In addition to passing on applications for projects and maintenance grants, the Surgeon General is to be required to consult with other Federal health and welfare activities and to cooperate with them to the fullest extent, and will be authorized, "after consultation with the Council as to general policies," (1) to prescribe standards for training any personnel required in connection with any such hospital project and to assist financially such personnel in securing such required training, subject to the limitation that the total amount of such assistance shall not exceed 2 per cent of the amounts appropriated for construction and maintenance; (2) to cooperate with federal, state and local health and welfare authorities and with professional agencies; (3) to make inspections with respect to professional service in and maintenance of hospitals constructed under the act; (4) to make such rules and regulations as may be necessary to carry out the purposes of the act, including the prescribing of standards of personnel, maintenance and operation of hospitals constructed under the act and the requiring of reports with respect to such hospitals, and (5) to conduct, assist and foster studies and surveys with respect to needs for hospitalization and problems of hospital operation.

The bill authorizes the appointment of such additional commissioned officers and other personnel in the United States Public Service as may be necessary in carrying out its provisions.

ORGANIZATION SECTION

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ORGANIZATION SECTION

PHYSICAL EXAMINATION OF DRIVERS OF MOTOR VEHICLES
IN INTERSTATE COMMERCE

BUREAU OF LEGAL MEDICINE AND LEGISLATION, AMERICAN MEDICAL ASSOCIATION

History of past illnesses
(When positive insert date)

.....	Paral
.....	Diabete
.....	Syphilis
.....	Gonorrh
.....	Herma

ORGANIZATION OF

PHYSICAL EXAMINATION OF DRIVERS OF MOTOR VEHICLES IN INTERSTATE COMMERCE

PREPARED BY THE BUREAU OF LEGAL MEDICINE AND LEGISLATION, AMERICAN MEDICAL ASSOCIATION

of the Interstate Commerce Com-
missioners and contract
Jan. 1,

Tuberculosis Pleurisy Hemoptysis Cancer	History of past illnesses (When positive insert date) Dysentery Hemorrhoids Hemorrhoids Syncope High blood pressure Epilepsy or fits Operations	Paralysis Diabetes Syphilis Gonorrhea Hematuria
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PREPARED BY THE BUREAU OF L

Revised regulations of the Interstate Commerce Commission applicable to common carriers and contract carriers by motor vehicles became effective Jan. 1, 1940. They provide, among other things, that no motor carrier shall permit any person to drive any motor vehicle operated in interstate or foreign commerce unless the driver possesses certain minimum physical qualifications.

A driver may be so employed who has sustained a leg, hand or arm. To the extent that such persons are able to operate a motor vehicle with safe driving, a driver must have sufficient organic or functional capacity to perform the duties of a driver.

No driver may be so employed who has sustained the loss of a foot, leg, hand or arm. To the extent that they are likely to interfere with safe driving, a driver must not have any mental, nervous, organic or functional disease and there must be no loss of fingers, impairment of use of foot, leg, fingers, hand or arm, or other structural defect or limitation. With respect to eyesight, the regulations require a driver to have visual acuity, either without glasses or by correction with glasses, of at least 20/40 (Snellen) in one eye and 20/100 (Snellen) in the other eye; form field of not less than 45 degrees in all meridians from the point of fixation, and ability to distinguish red, green and yellow. As to hearing, the regulations require that it shall be "adequate."

New drivers entering, after Jan. 1, 1940, the employ of a common carrier or contract carrier by motor vehicle engaged in interstate or foreign commerce, must undergo a physical examination. The revised rule imposing this requirement is as follows:

PHYSICAL EXAMINATION.

... certificate required for new drivers. C... carrier shall have in 1... a qualif...

RULE 1.3.—PHYSICAL EXAMINATION.

RULE 1.3.—PHYSICAL EXAMINATION.
RULE 1.31.—*Doctor's certificate required for new drivers.* On and after Jan. 1, 1940, every motor carrier shall have in his files a certificate of physical examination signed by a qualified doctor of medicine for every new driver entering the motor carrier's employment, attesting that the doctor has examined said driver and found him to meet satisfactorily the qualifications set forth in rules 1.21 to 1.23, inclusive. Said certificate shall be filed with the motor carrier within ten days of the new driver's entering the motor carrier's employment. For the purposes of this rule, a new driver shall be deemed to be any driver applying for employment as a driver who is unable to furnish a certificate of physical examination showing that he has been examined and qualified as required by this rule within one year prior to the date of his application for employment. This requirement shall also apply to owner drivers who become such on and after Jan. 1, 1940.

RULE 132.—*Carrier's right to require additional examinations.* Nothing contained in rule 1.31 shall be so construed as to prevent a motor carrier from requiring physical examinations of drivers in addition to those prescribed in that rule.

RECOMMENDED PRACTICES

The following form is recommended as a Standard Physical Examination form in connection with physical examination of drivers required under rule 1.3:

RECOMMENDED STANDARD PHYSICAL
EXAMINATION FORM

RECOMMENDED STANDARD EXAMINATION FORM
For Drivers of Interstate Buses and Trucks
(Note to Examining Physician): Read instructions before starting examination
Give answer to each question before turning page to next question
Do not answer any question until you are told so state

PERSONAL AND MEDICAL HISTORY

Be sure to record on and
When negative or positive to

PERSONAL AND MEDICAL HISTORY

Name in full Marital Status S M W D
Age last birthday State
Address: Street City
Usual occupation
Years' experience as operator of commercial motor vehicle

Tuberculosis	History of past illnesses	Paralysis
Pleurisy	(When positive insert date)	Diabetes
Hemoptysis	Dysentery	Syphilis
Peptic ulcer	Hemorrhoids	Gonorrhea
Pneumonia	Syncope	Hematuria
History of hospitalization	High blood pressure	
Have you other illnesses, injuries, or operations	Epilepsy or fits	

RECORD OF PHYSICAL FINDINGS	
Development: Good	Poor
Fair	

RECORD OF PHYSICAL FINDINGS

RECORD OF PHYSICAL FINDINGS

General appearance and development: Good Fair Poor
Height _____ Weight _____
Hood: _____
Eyes: For Distance { without glasses { Right 20/ Left 20/
 { with glasses if worn Left. _____
Evidence of disease or injury: Right. _____ /20
Color vision (lantern). _____ Left ear _____
Ears: Hearing, 20 ft.: Right ear _____ Throat _____
Disease or injury _____
Mouth _____
Thorax: _____
Heart _____ Diastolic _____
If organic disease is present, is it fully compensated? _____
Blood pressure (sitting): Systolic _____ After 2 minutes rest _____
Pulse: Before exercise _____
Lungs _____ Tenderness _____
 Is truss worn? _____
Abdomen: _____ Abnormal masses _____
Scars _____ No. _____ If so, where? _____
Hernia: Yes _____ Urethral discharge _____
Genito-Urinary: _____
Scars _____ Accommodation R. _____ L. _____
Reflexes: _____ Light R. _____ L. _____ Increased _____ Absent _____
Romberg _____ Right: Normal _____ Increased _____ Absent _____
Pupillary _____ Left: Normal _____
Knee jerks: _____
Extremities: _____ Sugar _____
Upper _____
Lower _____
Spine _____
Laboratory findings if tests are indicated: Albumin _____
Urine: Specific gravity _____
Other _____ (Examining physician)
(Date) _____

PHYSICIAN'S CERTIFICATE
day examined.

PHYSICIAN'S CERTIFICATE
I have this day examined...

Other
(Date) PHYSICIAN'S CERTIFICATE.....

This is to certify that I have this day examined.....
and find him { physically fit only when wearing glasses
physically unfit and disqualifying condition has been
discussed with applicant

to perform the usual duties incident to employment as a driver of com-
mercial motor vehicles. This certificate is based on information obtained
in the making of a physical examination in accordance with the regulations
of the Interstate Commerce Commission for the qualification of drivers
and the standard form recommended for such examination. I have kept
on file in my office this record of his examination.

Date..... Signed..... (Examining physician)
Place..... Address.....

to use the Recommended Standard
Certificate must obtain the
reproduced in

the Interests of the Public.
and the standard form
on file in my office this record of
Date..... Place.....
Driver's signature.....
—Motor carriers desiring to use the Recommended Standard
Registration Form and Physician's Certificate must obtain their
forms. The forms should be reproduced in size
PHYSICAL

GENERAL INSTRUCTIONS FOR MAKING PHYSICAL EXAMINATION AND RECORDING FINDINGS

Be sure to record an answer to each question
When negative or positive so state

MEDICAL HISTORY

GENERAL INSPECTION AND
EXAMINATION

*Be sure to record an answer to each
When negative or positive so state*

MEDICAL HISTORY

The purpose of this physical examination is to detect the presence of physical defects of such a character and extent as to affect the applicant's ability to safely operate a motor vehicle. The examination should be made carefully and at least as complete as is indicated by the attached form. Defects may be recorded which do not, because of their character or degree, indicate that these defects should be necessary steps to the presence, however, of those which if neglected might lead to a condition likely to affect his ability to drive safely. Careful inquiry regarding defects found on physical examination. Lack of knowledge concerning the etiology of certain defects may result in making certain employment tests. Such data also may indicate the need for frequently be made by state department and laboratory tests without charge.

General Appearance and Development.—Notice serious under or over weight, any posture defects; perceptible limp, anemia, tremor or other form of nervousness such as might be caused by chronic alcoholism, thyroid intoxication or other illnesses. The rules of the Interstate Com-

merce Commission provide that no driver shall be addicted to the use of narcotics or habit-forming drugs, or the excessive use of alcoholic beverages or liquors.

Height and weight. Stripped to the waist with shoes and socks removed.

HEAD. Eyes.—The telebinocular, Snellen chart and other approved tests may be used to measure visual acuity. It is desired, however, when other than the Snellen chart is used, that the results of such test be expressed in values comparable to the standard Snellen chart. If applicant wears glasses, these should be worn while applicant's visual acuity is being tested. Indicate on record by encircling appropriate phrase on form "without glasses" or "with glasses if worn." In recording distant vision, use 20 feet as normal. Report all vision as a fraction with 20 as numerator and the smallest type read at 20 feet as denominator. Note ptosis, discharge, corneal scar, exophthalmos or strabismus uncorrected by glasses as determined by the simple cover test.

Ears.—Note evidence of mastoid or middle ear disease; discharge. In recording hearing record 20 feet as normal distance for conversational voice and record deviation from normal as fraction with 20 feet as denominator and actual distance as numerator.

Mouth.—Note evidence of infection, pyorrhea.

Throat.—Note evidence of disease and enlarged or infected tonsils.

THORAX. Heart.—Stethoscopic examination is required. Note murmurs and arrhythmia.

Blood pressure may be recorded with either spring or mercury column type of sphygmomanometer.

Pulse.—Normal pulse taken after being seated at least two minutes; then have applicant stand and, placing one foot on the seat of an ordinary chair, raise his body to an erect position twenty times in thirty seconds. Pulse rate should return to his normal after two minutes' rest. Because of abnormal conditions, some applicants will be unable to do this. This test has been found helpful in ascertaining physical ability for work.

Lungs.—It is necessary that the auscultatory cough be used. Tuberculosis, if suspected, state whether active or arrested and, if arrested, your opinion as to how long it has been quiescent. Sputum to be examined for tubercle bacilli in all suspected cases. Sample may be sent to the state health department.

ABDOMEN: Scars.—If present, state whether recent and if abnormally tender or if there is any evidence of hernia at the site of scar.

Abnormal Masses.—If present, note tenderness and whether or not individual knows how long they have been present.

Tenderness.—When noted, state where most pronounced and cause suspected.

Hernia.—Note whether no hernia, but impulse on coughing; no hernia or impulse, but abnormally large rings. Any hernia should be noted, and if present state whether it is retained by well fitted truss.

GENITO-URINARY.—When scars or urethral discharge are present, indicate patient's reason for same and when indicated submit smear of discharge to laboratory for examination.

REFLEXES.—If positive Romberg is reported, indicate degree. Pupillary reflexes should be reported for both light and accommodation. Knee jerks are to be reported absent only when not obtainable on reinforcement and increased when foot is actually lifted from the floor following light blow on the patella; otherwise as normal.

EXTREMITIES. Upper.—Note deformities and limitation of motion.

Lower.—Note deformities, limitation of motion, varicose veins. In case of hand deformities, note particularly whether or not sufficient grip is present to enable driver to secure a grip on the wheel. Show chronic ulcers. Note any atrophy or paralysis.

Spine.—Note deformities and limitation of motion. Be sure to record loss of foot, leg, fingers, hand or arm, or impairment of use thereof, or other structural defect or limitation likely to interfere with safe driving.

LABORATORY FINDINGS.—Urine analysis is indicated whenever systolic blood pressure is over 150 and diastolic over 100 and such other times as medical history or findings upon physical examination may indicate that they are necessary. A serological test should always be taken in case of those giving positive history of luetic infection or present physical findings on examination presenting possibility of latent syphilis.

On completion of the examination, physician should always date and sign his record of the same.

SUGGESTED SCHOOL HEALTH POLICIES

(Concluded from page 1676)

4. PROGRAM OF HEALTH INSTRUCTION

(abstract)

Health has been recognized for many years as an objective of education, probably with a realization of the basic nature of good health as a foundation for "living most and serving best," and it is likely that schools can make their greatest contribution to health through health instruction. All outlines of school health programs should state clearly and definitely the responsibility of schools to instruct pupils about the functioning of the human body, the causes and prevention of certain diseases, the acquirement and improvement of health, and community health programs. This instruction, as is true of all good education, will stress habits formed and attitudes developed as well as knowledge learned. The promotion of health through education constitutes a distinct challenge to present day education.

It is recognized that many experiences of pupils while at school contribute to their health education. At the present time, commendable emphasis is being placed on the educational implications of nurse-pupil contacts and the educational outcomes of examinations by physicians and dentists.

SCOPE OF INSTRUCTION

Health instruction will vary with different grade levels of pupils. In the primary grades, emphasis will be placed on healthful living and the cultivation of attitudes which make healthful living enjoyable.

This concept of health instruction is based on the belief that health instruction should do more than teach health habits and should avoid creating the impression that all disease can be prevented by "living healthfully." As far as is known, no amount of "healthful living" will prevent appendicitis, rheumatic fever or cancer! School health instruction programs should teach healthful living but they should also give some understanding of certain diseases. The instruction concerning disease should be limited, however, to information which laymen need, and care should be taken to present it in such a way that pupils will not develop fears or feel that they can diagnose and treat their own sicknesses. Although first aid procedures will be taught as well as procedures in the care of the sick at home, these topics should be accompanied by a discussion of the limitations and dangers of self diagnosis and self treatment. School health instruction should include the causes of disease, how disease is spread, what preventive measures are available,

and the proper selection and use of professional health services. Through such a program of health instruction, schools can promote individual and community health.

SCIENTIFIC ATTITUDE ESSENTIAL

Perhaps the greatest value of school health instruction comes from the development of a scientific attitude toward problems of health and disease and a realization that the principles of biology, physics and chemistry are as applicable to the human body as to matter or material elsewhere. It is believed that a scientific attitude toward health and disease can break down superstitions and fads and thereby fit pupils to analyze critically the tremendous amount of misleading advertising presented in magazines and over the radio. Practice in distinguishing between fact and fallacy in health problems, learning where to find scientific data and authentic opinions, and studying various types of problems related to quackery and "patent medicines" are methods to be employed in developing a scientific concept of personal and community health problems.

As a policy it is recommended that schools recognize and acknowledge their responsibility to educate pupils regarding the acquirement and improvement of health, the prevention of disease and community health problems. We recommend serious attention and careful study to determine the best way to meet this obligation.

ADULT HEALTH EDUCATION

The need for health education is not limited to children; it is found that health education is becoming an integral part of expanding programs of adult education. It has often been stated—and truthfully—that thousands of lives could be saved annually and thousands of people could be happier and healthier if our present knowledge of health and disease were fully utilized. For the attainment of this goal, health education for adults, as well as for children, is necessary.

Needed health education cannot all be given during the school life of an individual. There are some phases of health which require a mature point of view and in some phases interest is not keen until maturity, or even middle age, is reached. Present day adults whose health education is limited to what they learned in school may know nothing about insulin, about newer methods of diagnosing and treating tuberculosis or about recent knowledge which brings hope to cancer sufferers whose condition is diagnosed early. There are parents who learned nothing about the prevention of diphtheria when they were in

ORGANIZATION SECTION

school because at that time diphtheria prevention measures were unknown or untried.

From the point of view of the school, we cannot expect children to be well cared for and in condition to profit from the school program if parents do not know how to supervise their health. Intelligent home care is just as important as intelligent school care. Adult health education programs can coordinate the efforts of the home and the school with a resultant force for improved child health of immeasurable value.

1. Bring the health knowledge of adults up to date with articular emphasis on preventive measures.
2. Meet the interests and curiosities of adults.
3. Supply deficiencies in health knowledge and influence attitudes of adults.
4. Coordinate the health supervision activities of parents and the school.

5. Interpret to adults the community facilities and the community program for safeguarding and advancing public health. Departments of education have definite responsibilities in meeting the need for adult health education, but they will find departments of health and medical and dental societies willing to share these responsibilities, helpful in pointing out desirable approaches, and eager to suggest topics needing special emphasis. Many adult education programs give particular attention to non-English speaking adults. The recognized specific problems of this group do not preclude presenting fundamental health information. Adult health education should be available to all.

5. PERIODIC HEALTH EXAMINATIONS (in full)

School health examinations have experienced many changes since first introduced. Originally planned as a means of detecting signs of communicable disease, they were later used to discover untreated skin diseases and other conditions which might result in unnecessarily prolonged absence from school. Then came an emphasis on the discovery of physical defects, and at the present time emphasis is being placed on health examinations as educative experiences. This latter emphasis presupposes parents will be invited to the examination of elementary pupils, that the physician will have time to explain his conclusions to the pupil or parent and give detailed information to the nurse for use in the follow-up program. Consideration of the health examination as an educative experience has created a desire to eliminate the hurried, careless inspection in favor of an examination of fewer pupils in a more leisurely, considerate manner.

During the past few years, considerable attention has been given to the examination of children previous to their enrollment in school. The Summer Round-Up Program, sponsored by the Parent-Teacher Association, has centered a nationwide interest on this problem and has achieved marked progress in making parents conscious of the need for children to be free of remediable defects on entrance to school. As an ideal, we should look forward to the time when children—preschool children, school children and children out of school—will have periodic health examinations. Certainly schools should do all they can to encourage health examinations for preschool children, and their teachings and practices should be such that pupils leaving school will know the value of such examinations.

EXAMINATIONS BY PRIVATE PHYSICIAN

In some communities pupils, whenever possible, are referred to their private physician for health examinations and given a form on which the private physician records both his conclusions and his recommendations for the school. The physician's conclusions are entered on the health record card and the card returned to the school and filed. School examinations are necessarily limited in scope because of the large number to be examined with limited personnel, lack of laboratory facilities, and the school physician's lack of intimate knowledge of the pupil and his past history. As usually planned, the examination is limited to a consideration of factors related to a pupil's ability to carry on satisfactorily examinations give particular attention to vision and hearing and to fitness for participation in the physical education part of the school curriculum.

The school examination is not an adequate substitute for continued health supervision by the private practitioner, and the referral of pupils to their private physician for examination is good practice.

RESPONSIBILITY OF SCHOOLS

As a policy regarding health examinations, it is suggested that schools assume responsibility for developing a program of periodic health examinations, and that this program encourage examination of pupils by their private physician. In following such a policy it will be necessary for schools to provide examinations for large numbers of pupils whose parents cannot or will not arrange examinations otherwise. Such examinations as are provided by schools should be planned particularly for assisting in understanding the pupil, estimating the pupil's ability to progress with his school work and determining what adaptations in the school program may be desirable.

LIMITATIONS OF EXAMINATIONS

In considering periodic health examinations it is pertinent to point out both their limitations and the fact that serious sickness may develop the day after a thorough, careful examination has revealed no abnormality. Those who believe that negative conclusions assure continued good health labor under a false security. Physical examinations reveal conditions as they exist at the time of examination but not necessarily what will happen in the future. As a means of finding children who are in need of medical care, the health examination is limited. The pupil with a communicable disease, with pain in the abdomen, with headache, as well as the pupil with blurred vision, all need medical care, but these conditions may occur soon after an examination and with no notation on the health record to warn of their approach.

DAILY HEALTH OBSERVATION

The day by day observation of pupils by teachers and the referral for further investigation of pupils who do not seem well are thought by some to be as valuable a health-promoting activity as the periodic physical examination. Such observations—always to be used as a supplementary measure—frequently detect pupils in need of medical care whose need would not be discovered by medical examination. They are most effective when teachers are both trained to make careful observations of pupils and conscious of their responsibility for pupil health supervision.

FREQUENCY OF EXAMINATIONS

How frequently should school sponsored examinations be conducted? It may first be stated that provision should be made for an examination, by either a private physician or a school physician, whenever a pupil fails to grow as expected, shows signs or symptoms of disorder or disease, or when there appears to be a health basis for his failure to make expected school progress. The examination of pupils referred by teachers because of school problems possibly caused by health conditions, or because of observed abnormal conditions, should always receive precedence over any routine program of examinations. Administrative arrangements for receiving this help. In addition to the examination of pupils referred by teachers, it is desirable that routine examinations be conducted at intervals, the frequency of which will depend on the type of examination under consideration. Many school health workers urge monthly weighing as part of the health education program and as a means of detecting cessation of growth over periods of three or more successive months. Weighing and measuring of pupils is an aid in understanding pupil growth and an educational device to interest them in health, although it is not a reliable index of nutrition. Annual testing of vision is recommended. It is believed that hearing tests should be made annually in the elementary schools but that biennial tests are sufficient in secondary schools. Children should have dental examinations at least twice each year, and it is recommended that schools urge pupils to have these examinations by their private dentist. With regard to the physicians' examinations—which usually cover as a minimum nutrition and posture, condition of the eyes, ears, nose, throat, speech, heart, lungs, glands and skin—

there have been differences of opinion as to the desired frequency. Some advocate annual examinations while others favor three or four examinations during the school life of a child. Further study is needed before a scientific answer can be given. This study will have to consider the cost of examinations and the personnel needed and weigh these factors against the benefits that may accrue. In the opinion of this committee four examinations—two in the elementary school and two during the secondary school—should detect most abnormal conditions affecting growth, health and school progress as well as afford teachers information necessary for understanding pupils and adjusting school programs to their needs. Again, it is emphasized that periodic examinations should be supplemented by the day by day observation of pupils and arrangements whereby those who show evidence of disease or disorder may be examined and, where necessary, helped to secure needed treatment.

Pupils who show serious defect or abnormality and those who have recently had a serious illness or accident may require more frequent examinations, perhaps annual examinations. The need for repeated examinations can best be determined by the examining physician based on the conditions he finds.

The question may be raised, Should those participating in strenuous athletics be examined annually or are four examinations during the school period sufficient for this group? With the present development of physical education programs, it is found that practically all junior and senior high school pupils take part in strenuous activity and it is quite probable the pupils most in need of health supervision are not those who are members of an interscholastic squad working under the close supervision of a physical education teacher (coach) but rather those who are less proficient but still active in sports. Regardless of the athletic proficiency of the pupil, regardless of whether the activity is strenuous or mild, school-time, after school or vacation activity, it is believed that parents should assume the primary responsibility for securing medical advice and medical care for pupils. Consequently the policies which govern school health activities in general should apply to school health activities in relation to athletics. In keeping with this point of view it is believed that two school-sponsored examinations during the secondary school period, coupled with day by day teacher supervision and special examinations as indicated in individual cases, discharge the school responsibility for health supervision. Those who are taking part in strenuous athletics—particularly activities which are not closely supervised—should be encouraged to have annual examinations by their private physicians. In all cases there must be an awareness on the part of physical educators and coaches of the need for referring pupils to a physician when abnormal signs are present, a knowledge of the machinery to be used in making such reference, and a general understanding of school health policies.

6. SPECIAL ATTENTION TO PUPILS NEEDING MEDICAL OR DENTAL CARE (in full)

The special attention given by schools to pupils in need of medical and dental care constitutes one method adopted by society to make sure that the health of children is not neglected. From this social point of view the follow-up program assumes great importance and deserves special consideration.

A COOPERATIVE ENTERPRISE

The follow-up program is a cooperative enterprise requiring participation by school personnel, private physicians and dentists, social and welfare agencies and parents. The initial step is made at the time of examination, when in a friendly sympathetic manner the physician outlines the treatment needed and where it can be obtained. This initial step is extremely important, because adequate follow-up cannot take place if the physician is not specific in informing nurses and teachers of what is needed. The nurse plays an important role in these procedures, acting as liaison between the home and the school and informing parents and teachers of community treatment resources. However, there is need for all teachers to assist in the follow-up program. This is especially true in the dental field, where the number of pupils needing guidance is so large that significant progress can be made only through the help of many individuals.

PRINCIPLES FOR SCHOOLS

In helping pupils needing medical or dental care there are several principles which school personnel should follow. First, school personnel should not attempt to diagnose a condition or suggest to parents or pupils a possible diagnosis. Secondly, school personnel should never attempt to select a physician or dentist for individual pupils or families; it is important that each family make its own selection of professional advisers. If the family is new in the community, it may obtain the names of qualified professional people from local medical and dental societies. Thirdly, school personnel should advise consultation with the private physician and dentist and suggest free clinics or part-pay clinics only for those unable to afford private care. When parents or pupils are referred to clinics, they should be informed that clinics are for those unable to pay regular fees and that whether or not a clinic will give service depends on the results of a social investigation. By such procedures, schools decrease the misuse of clinics which, if carried too far, might jeopardize the opportunities of needy pupils.

TREATMENT NOT A SCHOOL FUNCTION

It will be noted that special attention to pupils needing medical or dental care does not make the school responsible for diagnosis and treatment. Diagnosis and treatment (including diphtheria immunization, refraction of the eyes and the fitting of glasses, tonsil operations and dental prophylaxis) are responsibilities of practicing physicians and dentists. The securing of dental and medical care is a responsibility of the parent. The school interest in pupil welfare leads it to help parents make the best possible use of community treatment facilities, but this interest does not imply that treatment will be provided.

No pupil should be handicapped because he fails to receive needed health care. The program outlined to follow up results of examinations recognizes this and offers parents every possible assistance in obtaining treatment for their children. But this should be done in a manner which allows parents to maintain both their self respect and their responsibility for the care of their children. This is preferable to transferring to teachers and nurses responsibility for securing medical care for pupils.

It is believed that this statement of policy is sufficiently clear as it relates to a majority of pupils. However, in their application several important problems are encountered.

NEEDY CHILDREN

One problem relates to children whose parents are financially unable to provide needed medical and dental care. The supplying of this care, as well as the supplying of other needs, is a community rather than a school problem. The solution of this problem can best be accomplished through the cooperative efforts of many groups, such as welfare agencies, medical and dental societies, public health agencies, schools and civic organizations. This point of view is that community problems should be solved by representatives of various groups working together rather than by one individual or one group.

The schools are keenly interested in seeing that poor children receive the attention they need. Children in need of medical or dental care are not successful students, as witnessed by the number with serious physical defects who become retarded in their school work. Further, the value of the health examination and educational program of the schools is greatly diminished if pupils are unable to obtain the professional services which they learn are necessary. Finally, no community can allow its children to be deprived of the right to grow into healthy, strong manhood or womanhood. Healthy children are the greatest asset a community can have.

RESPONSIBILITY OF THE SCHOOL

If existing community facilities for the medical and dental care of poor children are found inadequate, what should the schools do? Probably the best procedure is to obtain specific data indicating the inadequacy of treatment facilities and present these data to those in charge of medical and dental relief programs with a plea that adequate facilities be provided. Schools are better organized to discover the need for additional medical and dental care for children than any other group in the community, and they should take the initiative in bringing these needs to light.

ORGANIZATION SECTION

Such a plan is superior to the establishment of treatment clinics in schools. If school clinics are developed they serve only the needs of children in the public schools, while clinics for adults and non-public school pupils may be operated under other administration. To avoid duplication or, at best, dual control it seems better that existing facilities for the medical and dental care of adults and children be increased if necessary so to care for school children. Another reason for having treatment facilities at places other than the school is that treatment clinics in schools cause confusion as to the responsibility and function of the school health program. The presence of clinics at school leads to the assumption that the school is responsible not only for health education and health supervision but for providing medical and dental care to all pupils. Education regarding the use of community facilities is a responsibility for the schools, but if, instead of doing this job, it provides treatment, it will not be making them dependent on the school for these services. As stated by the White House Conference Report on the School Health Program, "Any policy that does for the individual what he can do for himself leaves him more dependent and less willing to care for himself when the protecting hand is withdrawn." Sound school health education teaches children and parents where and how to get treatment, so that when they leave school and when they are in need of care during vacations they will have learned how health needs may be met.

Another problem applies to parents who are financially able to afford treatment but do not provide it. The number of these cases is, quite happily, comparatively small when parents understand the implications of the child's condition and the need for treatment. The school responsibility in such cases depends on the reason for neglect. If it is due to ignorance or to lack of knowledge of existing facilities, the school through the teacher or nurse should consider it has a definite task and a definite responsibility. If, however, there is a wilful neglect, the case is one to be decided by the probation department or the juvenile courts.

7. SPECIAL EDUCATION PROGRAMS (in full)

Health examinations reveal pupils in need of medical and dental treatment; they also discover pupils whose education programs need adjustment to their physical abilities. Some of these adjustments will be related to physical education. The examining physician (either private or school) should state whether a pupil may participate in usual physical education activities, whether some modification is needed as well as whether or not there is need for special corrective physical education. The foundation of school efforts to improve posture should be medical examinations thorough enough to determine both causes of poor posture and the practicability of improvement through exercise.

Besides pupils needing adjustments in physical education there will be those who need an increased amount of rest or who should be required to attend school only a half of each day. There will also be some who require special seating.

Whereas a member of the school health staff (physician or nurse) may be the one to discover need for an adapted program, the actual adaptation and the help which a pupil may need require active participation by the teacher. There is need for close cooperation between nurse, special guidance personnel where available, and the teacher of pupils requiring special programs.

It is best to modify a pupil's program while leaving him in his regular class and to enroll a pupil in a special class or school only when this will result in a better educational job than could be done by the regular class or when progress of the handicapped pupil is seriously hindered by the presence of the handicapped pupil. More than anything else, the adaptation of the handicapped pupil needs to accept his handicap and make the adaptations it requires. This can usually be accomplished most easily when he is associated with normal pupils.

Various types of handicapped pupils cannot satisfactorily cope with the regular school program, including those who are mentally subnormal and those with severe orthopedic deformities; also those with severe hearing impairment who need lip-reading

instruction and those with severe vision impairment who need sight-conservation measures. Speech correction is needed by those who lisp, stutter or have other speech defects. Pupils with damaged hearts may need a restriction of stair climbing and a limitation of play. Those convalescing from prolonged sickness or operations may need rest periods.

It should be the policy of schools to adjust programs to the various needs and limitations of pupils. It should be clear that while the school may modify its program for the crippled pupil, the convalescent or the one with poor vision or hearing, this adjustment does not imply responsibility for needed medical care. The school should first see that the pupil is receiving needed treatment and then adjust the school program with the approval of his physician. By such procedure the school can avoid the embarrassing situation of enrolling in a sight-saving class a pupil whose defective vision can be satisfactorily and completely corrected with glasses or providing lip reading for a pupil whose impaired hearing could be improved or corrected by the removal of dried wax or the removal of tonsils and adenoids.

8. SUPERVISION AND IN-SERVICE FOR TEACHERS (Abstract)

Schools should accept responsibility for providing supervision and in-service training for teachers and should place specific responsibility for coordinating all school health activities and for relating these to community health programs in the hands of some persons especially qualified in education and in school health work.

There are other functions of a supervisory nature for which the schools should provide. All school personnel, namely janitors, classroom teachers, teachers of home economics, physical education, biologic sciences and social studies as well as the more strictly health trained people—as physicians, nurses, dentists, dental hygienists and dietitians—are concerned with activities of the school health program. To coordinate these groups so that the school health program will be a smoothly functioning unit without friction or duplication requires considerable planning, effort and diplomacy. Besides coordinating the various threads of interest within the school, there is need of relating school health activities with the health interests of other groups, such as child welfare associations, departments of health, parent-teacher associations, medical and dental associations, and various clinics, hospitals and dispensaries.

CONCLUSION

Throughout this statement, attention has been directed to school responsibilities for health education, health protection and health guidance as well as policies to be followed in meeting them. To the degree in which these responsibilities are met, schools contribute to the present and future health of pupils and their community. This contribution will be greatest when there is careful planning, well trained personnel and coordination of school efforts with those of others interested and concerned with child health and health education. As various groups work together on these problems, improved technics will be evolved, debatable issues decreased and more effective and efficient programs developed. The procedures of an individual school may profitably be compared with the policies and responsibilities listed in this report.

Policies change with time. What is considered good policy at the present time may not coincide with what was recommended several years ago, and the future will unquestionably modify present views. The committee is aware of this transient nature of policies but believes that progress and understanding are facilitated by clear cut and definite statements of opinion. It hopes that this statement will contribute to the study, planning and improvement of school health programs and thus to progress in improving both the health of children and the communities in which they live.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. 3230 has been reported to the Senate, with amendments, to provide for the general welfare through the construction of needed hospitals and grants to states and political subdivisions thereof for the construction, improvement and enlargement of hospitals. An analysis of the reported bill appears elsewhere in this issue of THE JOURNAL. H. R. 9007, making appropriations for the Department of Labor, the Federal Security Agency and related independent agencies, has passed the Senate. An amendment was adopted in the Senate increasing from \$5,000,000 to \$7,000,000 the amount available for venereal disease control activities. The Senate rejected an amendment proposed on behalf of Senator Pepper, of Florida, to make available not to exceed \$100,000 for researches, investigations and studies relating to the cause, diagnosis and control of pneumonia, influenza and the common cold.

Bills Introduced.—H. R. 9536, introduced by Representative Weaver, North Carolina, proposes to provide domiciliary, medical and hospital treatment to certain former members of the Army, Navy, Marine Corps and Coast Guard. H. R. 9576, introduced by Representative Randolph, West Virginia, proposes to establish certain requirements with respect to the admission to Saint Elizabeths Hospital of persons resident or domiciled

in the Virgin Islands. S. 3855, introduced by Senator Bailey, North Carolina, would amend title X of the Social Security Act to provide for additional aid to the blind. S. 3910, introduced by Senator Walsh, Massachusetts, proposes to authorize the Administrator of Veterans' Affairs to furnish domiciliary and hospital care and medical treatment to World War veterans of the United States merchant marine. S. 3914, introduced by Senator Pepper, Florida, proposes a federal appropriation of not in excess of \$3,000,000 for the fiscal year ending June 30, 1941, and for each fiscal year thereafter such sums as may be necessary to assist states, counties, cities, health districts and other political subdivisions to establish and maintain adequate measures for the prevention, treatment and control of pneumonia.

STATE MEDICAL LEGISLATION

Mississippi

Bill Introduced.—H. 1137, to revise the privilege tax code, proposes, among other things, to impose an annual privilege tax of \$10 on "each physician, dentist, osteopath, chiropractor, podiatrist, chiropodist, oculist or naturopath, whether practicing alone or with another." The bill also proposes to levy an annual tax of \$25 on each person engaged in the business of operating a clinical, bacteriologic or biologic laboratory.

MEDICAL ECONOMIC ABSTRACTS

RELATION OF THE ASSOCIATED
HOSPITAL SERVICE PLAN TO
THE MEDICAL PROFESSION

Abstract of an article by Paul Keller, M.D., Medical Director, Associated Hospital Service of New York.

The Board of Directors of the Associated Hospital Service of New York consists of eighteen members. Six of these are physicians appointed by the board of directors from a list submitted by each of the seventeen county medical societies in the metropolitan area including northern New Jersey.

This one third representation of the medical profession creates a definite sense of responsibility on the part of the profession. In addition, physicians serve in a medical advisory capacity to the claim department, so that cases of misunderstanding with individual doctors are clarified directly through the doctors' own organization. It is anticipated that this medical representation will further an educational program among physicians through medical staff meetings at member hospitals where representatives of the administrative staff may confer personally with individual medical staff groups.

RELATIONSHIP OF THE CLAIM DEPARTMENT TO
PHYSICIANS

It is recognized that it is impossible to operate the plan successfully without the full cooperation and coordination of the attending physician, whose opinion must at all times be respected by the personnel of the department. Nothing must be done that will alter the confidential relation between the doctor and the patient. To help achieve this objective, patients must be admitted with as little red tape as possible and their eligibility for hospital benefits must immediately be acted on by the Medical Review Board of the Associated Hospital Service.

The physician's certificate, which serves as a part of a hospital admission notice, is a request for the attending physician to furnish the diagnosis and other data necessary to a prompt decision by the Medical Review Board as to approval of a hospital claim. This physician's certificate gives the name, address, age, diagnosis and date when hospital care was first recommended.

The patient brings this certificate to the admitting clerk at the hospital. The information on this certificate enables the

Medical Review Board to determine the disposition of the claim promptly. The great majority of such claims are approved automatically on the basis of the information given in the physician's certificate.

If the doctor chooses not to fill out this certificate or to withhold the diagnosis from the patient, he may give the information requested direct to the hospital admitting clerk or to the Associated Hospital Service claim department. Further consultation may be secured by telephonic contact with the doctor who handles admissions in the claim department.

In case a point of major difference arises between the claim department and the physician who has issued the certificate, this is presented to the Medical Advisory Committee for its decision.

PREREVIEW OF ADMISSION NOTICES

When decisions prior to admission are made by virtue of correspondence, all details of the correspondence, or telephone conversation, are entered on a card which also shows the disposition. The notices of admission are then forwarded to a prereview clerk who is a registered nurse. This clerk, using a list of diagnoses on which there will be no question as to approval, determines which cases are obviously allowable. Such claims are classified as "Obvious Approvals" and immediately forwarded to the typing division so as to notify the hospital and subscriber of the approval.

MEDICAL REVIEW OF CLAIMS

Approximately 75 per cent of the claims are classified in a routine way as "Obvious Approvals." The remainder, approximately 125 claims daily, are referred to a medical review board for determination as to approval or rejection on the basis of subscribers' contracts. It is often necessary to discuss cases with the physician to determine the actual facts and also to acquaint physicians with admission policies. As far as possible decisions are based on a standard interpretation in order to spare the physician an excessive amount of clerical work.

These standard provisions have been prepared to cover the most frequent medical controversial problems in the interpretation of hospital contracts. They cover such subjects as anesthesia, laboratory and x-ray examination, communicable diseases, pulmonary tuberculosis, admission solely for diagnostic purposes, preexisting conditions and venereal diseases. These standard interpretations apply principally to the exceptions in the contract, which are the source of most controversies as to admission.

ORGANIZATION SECTION

WOMAN'S AUXILIARY

Arkansas

The auxiliary to the Bowie-Miller Counties Medical Society secured fifty-four subscriptions to *Hygeia* and also contributed \$15 to the Arkansas Tuberculosis Association.

The auxiliary to the Franklin County Medical Society held its January meeting in Ozark. Members have placed *Hygeia* in the schools and public libraries and also contributed \$20 to furnish milk to underprivileged children.

The auxiliary to the Ninth Council District Medical Society met in Harrison, where Dr. D. W. Goldstein of Fort Smith spoke on cancer at a joint meeting of the society and the auxiliary.

California

The auxiliary to the Los Angeles County Medical Association met in Los Angeles on November 28. Dr. William H. Daniel, president of the Los Angeles County Medical Association, spoke on "Working Together"; Dr. Elizabeth M. Hohl, "Relief and Fraternal Relations," and Mr. Rex Thompson, superintendent, Department of Charities, County of Los Angeles, discussed care of the needy. Guests of honor at the meeting were the members of the board of trustees of the county medical association.

The auxiliary to the San Diego County Medical Society held a meeting, November 14, at the Sequoia Club and raised \$125, which was given to the medical scholarship fund.

At a meeting of the auxiliary to the San Francisco County Medical Society, November 21, Ruth T. Storey, Ph.D., psychologist of the juvenile court, spoke on "Training the Child for Adjustment and Mental Health." Mrs. Frederick N. Scatena, president of the auxiliary to the California Medical Association, described the development of auxiliaries and urged the formation of new groups throughout the state. The principal philanthropic work of the auxiliary is to maintain a scholarship loan fund for senior medical students of the University of California and Stanford University medical schools. The auxiliary also donated \$75 to a blind woman to assist her in purchasing a trained dog as guide.

The auxiliary to the Santa Barbara County Medical Society on November 13 had as guests Mrs. Frederick N. Scatena, president of the auxiliary to the California Medical Association, Mrs. Clifford Wright, immediate past president, and Mrs. E. Eric Larson, president of the auxiliary to the Los Angeles County Medical Association.

Dr. Ellis D. Sox, health officer of Tulare County, spoke on "Child Welfare" at the meeting of the auxiliary to the Tulare County Medical Society in Visalia, December 3.

An auxiliary to the Humboldt County Medical Society was organized January 12, with twenty-one charter members. Mrs. John N. Chain Sr., of Eureka, was named president.

Florida

Mrs. L. C. Ingram, president of the auxiliary to the Florida Medical Association, spoke before the auxiliary to the Broward County Medical Society in Fort Lauderdale, February 13. The auxiliary assisted the Broward County Tuberculosis and Health Association by sending letters containing 5,000 Christmas seals during the annual Tuberculosis Seal Sale. The auxiliary, in cooperation with the Women's Field Army of the American Society for the Control of Cancer, sponsored a program on cancer control at the Fort Lauderdale Woman's Club recently. Posters and other exhibits on cancer were explained. Speakers on the program were Mrs. J. Ralston Wells, of the Florida Field Army; Dr. Leigh Robinson, president of the Florida Medical Association; Dr. R. L. Elliston, president of the Broward County Medical Society; Mrs. J. W. McMurray, chairman of the Welfare Department of the Women's Club, and Mrs. B. D. Arnold, president, who presided at the meeting. Rosalie Slaughter Morton, physician and author, talked the life of the Finns, especially stressing the activities of the women, at a meeting of the auxiliary to the Orange County Medical Society in Orlando, January 23. Three health programs were arranged recently: Dr. Gilbert Osincup spoke on

communicable diseases and their prevention, Dr. Spencer Folsom on the prevention and relief of heart disease at the Sorosis Club in Orlando, and Dr. L. C. Ingram and Dr. W. P. Rice on a program before the Parent-Teacher Association and school group. The auxiliary gave forty six-months' subscriptions to *Hygeia*, placing them in city and county schools, hospitals and libraries.

The auxiliary to the Pinellas County Medical Society held a meeting in St. Petersburg, January 13. Mrs. Francis Eaton reviewed "The Hudson," by Carl Carmer.

Georgia

The auxiliary to the Sixth District Medical Society met recently in Macon. Mrs. Y. H. Yarbrough of Milledgeville was named president. Speakers on the program were Mrs. Eustace A. Allen, president of the auxiliary to the Medical Association of Georgia; Mrs. H. G. Banister, president-elect, and Mrs. J. Harry Rogers, chairman of the press and publicity committee of the auxiliary.

Three auxiliaries to county medical societies, Glynn, Brooks and Spalding, were organized in Georgia recently. At recent meetings of the auxiliary to the Fulton County Medical Society held in Atlanta speakers were Dr. J. J. Clark, whose subject was radiology; Dr. C. E. Rushin, president of the Fulton County Medical Society, and Dr. Champney Holmes, who spoke on "What Price Tuberculosis?"

Mrs. Harold Atkinson reviewed "Rats, Lice and History," by Hans Zinsser, at a recent meeting of the auxiliary to the Bibb County Medical Society in Macon.

Illinois

Four auxiliaries to county medical societies, Hamilton-Jefferson, Madison, Henry and Peoria, were organized recently in Illinois.

Dr. Fredrick Falls, Chicago, spoke on maternal welfare at a meeting of the auxiliary to the Coles-Cumberland Medical Society in Mattoon January 26.

Dr. William Whitaker spoke on "The Health of Our Youth of Today" at a meeting arranged by the auxiliary to the Adams County Medical Society held in Quincy, January 26.

At a meeting of the auxiliary to the Will-Grundy County Medical Society in Joliet, February 13, Miss M. McClenahan, director of health in Joliet High School, talked on "Why I Read *Hygeia*." The meeting was attended by public health nurses of the county and by members of the Parent-Teacher Association.

At the January meeting of the auxiliary to the Knox County Medical Society in Galesburg, one of the members reviewed "Triumph Over Pain," by Miller.

The auxiliary to the Sangamon County Medical Society held its annual health educational day meeting in Springfield, February 12. Mr. Baxter K. Richardson, of the Division of Public Health Instruction in Illinois, spoke on communicable diseases and showed three motion pictures on the following subjects: tuberculosis, diet and heredity. Also, Miss Dorothy Southwick, public school nurse in Springfield, discussed school health service. The auxiliary to the Rock Island County Medical Society meets regularly in Moline. The annual Laity Day Tea was held at Augustana College April 30, at which time Dr. Caroline McDonald spoke on "After Forty, What?"

Kansas

The Labette County Medical Society and its woman's auxiliary were guests of the staff of the state hospital in Parsons recently and were entertained by Mr. A. W. Day, who showed the moving picture "Tundra."

The auxiliary to the Sedgwick County Medical Society was entertained recently by Mrs. D. W. Basham, of Wichita, chairman of the Board of Public Relations of Wichita University Auxiliary. The auxiliary donated toys and games for the children at the County Hospital and placed *Hygeia* in sixteen rural schools in Sedgwick County.

Kentucky

At the November meeting of the auxiliary to the Breathitt County Medical Society in Jackson Mrs. H. R. Parker read a paper on "Tuberculosis."

An auxiliary to the Calloway County Medical Society was reorganized in Murray recently. The auxiliary recently sponsored a health talk given before the Parent Teachers' Association.

The auxiliary to the Franklin County Medical Society entertained the wives of the physicians who attended the Sixth District of the State Medical Society in Frankfort recently. The auxiliary recently sent clothing, medicine and books to the Frontier Nursing Service, and contributed \$150 toward the improvement of the Hospital for the Colored Citizens.

The auxiliary to the Jefferson County Medical Society met in Louisville recently. Mrs. A. B. Sawyer was the speaker. At a meeting of the Study Class of the auxiliary Dr. J. Duffy Hancock told of developments in medical economics; at the November meeting Dr. George A. Hendon spoke on "Fracture of the Hip in the Aged." The auxiliary sent clothing to the Frontier Nursing Service and gifts to patients at the Children's Free Hospital.

Missouri

"The Handicapped Child" was discussed by Dr. Max Goldstein at a meeting of the auxiliary to the St. Louis County Medical Society in St. Louis recently. "Activities of the League of Nations on International Health" was discussed by Miss Lorene Pickett at the December meeting.

Dr. Edward Heller, Kansas City, spoke on "Advantages of the Basic Science Law of Missouri" before the auxiliary to the Lafayette County Medical Society in Lexington recently. At the November meeting of the auxiliary Mrs. E. L. Johnson read a paper on "The School Child and Its Health."

New Jersey

The auxiliary to the Essex County Medical Society met in Newark recently. Mrs. Norma Bingham, of the Newark *Evening News*, spoke on Iceland.

The auxiliary to the Hudson County Medical Society met in Jersey City recently. Mr. Arthur Voorhes spoke on the rehabilitation of the blind. The auxiliary is supporting the sale of articles made by the blind.

New York

At the February meeting in Albany of the auxiliary to the Albany County Medical Society Dr. Joseph Lawrence spoke on the Wagner Health Bill.

Dr. Edward Jones spoke on "New Treatment of Pneumonia" at the February meeting of the auxiliary to the Broome County Medical Society in Binghamton. The auxiliary sponsored an essay contest in the Binghamton schools and will continue it through the other schools of the county. The auxiliary will take charge of the work of the Women's Field Army of the American Society for the Control of Cancer in Broome County.

The auxiliary to the Rockland County Medical Society recently visited the New York State Reconstruction Home for crippled children at West Haverstraw.

North Carolina

At a meeting of the directors of the auxiliary to the Medical Society of the State of North Carolina in Sanatorium Mrs. C. F. Strosnider, president, outlined the plan of work for the year, which includes a study of health laws and of socialized medicine and ways and means of raising funds to maintain the McCain Bed at the State Tuberculosis Sanatorium, Southern Pines. The bed is named in honor of Dr. and Mrs. P. P. McCain, and a sum of \$1,426.66 has been raised toward its endowment.—The auxiliary has a Student Loan Fund amounting to \$619.79, which is available to children of physicians unable to complete their education without aid. The auxiliary will support also a charity bed at the tuberculosis sanatorium in the western part of the state.

An auxiliary to the Craven County Medical Society was organized at New Bern recently. Mrs. R. S. McGeachy was elected president. Mrs. C. F. Strosnider, president of the auxiliary to the Medical Society of the State of North Carolina, spoke on the purposes of the auxiliary.

The auxiliary to the Ninth District Medical Society held its sixteenth annual meeting at Morganton at which Mrs. James W. Vernon, district councilor, presided. Mrs. A. A. Kent Jr. distributed copies of the pamphlet "Historical Facts in Regard to Our McCain Bed" and spoke on this objective of the auxiliary. The auxiliary to the Morganton Medical Society entertained the visiting women during the day and in the evening joined the doctors at a banquet at the community house.

Pennsylvania

The auxiliary to the Bedford County Medical Society held an open meeting on cancer control in Bedford recently. Addresses by Dr. Stanley P. Reimann, Philadelphia, Dr. Norman A. Timmins, Bedford, and Dr. Eugene Kester, Bedford Valley, were followed by an open forum which created much interest.

Mrs. John H. Doane, president of the auxiliary to the Medical Society of the State of Pennsylvania, spoke before a meeting of the auxiliary to the Berks County Medical Society, Reading.

Mrs. Augustus S. Kech, president of the auxiliary to the American Medical Association, 1937-1938, spoke at a recent meeting of the auxiliary to the Blair County Medical Society in Altoona.

Dr. Francis F. Borzell, president-elect of the Medical Society of the State of Pennsylvania, spoke on "The Medical Insurance Plan" before the auxiliary to the Bucks County Medical Society in Doylestown.

The auxiliary to the Chester County Medical Society met at Darlington Resident Center, November 10. Miss Howey, personnel director of the center, spoke on the work of the institution. At the regular program meeting, following the luncheon, Mrs. John H. Doane, president of the auxiliary to the Medical Society of the State of Pennsylvania, spoke on the work of the state auxiliary. Dr. Edward L. Bortz, president-elect of the Philadelphia County Medical Society, spoke on "Pep After Forty" before the auxiliary to the Delaware County Medical Society in Chester.

Mrs. Ralph Forrester addressed the auxiliary to the Indiana County Medical Society, November 9, on "Tuberculosis"; the talk was illustrated by the motion picture "Let My People Live."

Mrs. John H. Doane, president, auxiliary to the Medical Society of the State of Pennsylvania, spoke at a meeting of the auxiliary to the Lehigh County Medical Society in Allentown.

The Mercer County Medical Society and the woman's auxiliary held a dinner meeting at the American Legion Home in Grove City. Miss Maric Tate gave her experiences as a missionary in Zagazig, Egypt.

The auxiliary to the Montgomery County Medical Society met in Norristown. Mr. Roy Jansen, a representative of the state medical society, presented "A Tour of the World in Posters," showing more than 100 modern posters.

The auxiliary to the Philadelphia County Medical Society met in Philadelphia. Dr. and Mrs. Louis H. Twyeffort spoke on "A Trip to Labrador," giving a description of a summer's work at the Grenfell Mission. Miss Martha Gibbons, a volunteer worker at the Grenfell Mission for many summers, exhibited handicraft made by the Grenfell Labrador Industries.

More than a thousand persons attended the two sessions of the cancer education meeting conducted by the auxiliary to the Washington County Medical Society in Washington. Speakers were Dr. George W. Ramsey, Mrs. Gustav Ketterer and Mrs. H. M. Welsh.

Dr. James P. Paul spoke on socialized medicine at a meeting of the auxiliary to the York County Medical Society in York.

Utah

The auxiliary to the Salt Lake County Medical Society met on December 28. Dr. and Mrs. E. M. Neher showed motion pictures which they had taken in Egypt and Palestine.

The auxiliary to the Carbon County Medical Society met in Price, January 7. A paper on the "Ups and Downs of Weight" was read and "The Days of My Strength," by Anna Walter Fearn, was reviewed.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARIZONA

New Superintendent of Health.—Dr. Frederick P. Perkins, Phoenix, has been appointed secretary and state superintendent of public health of Arizona to succeed Dr. Coit I. Hughes, who is retiring. Dr. Perkins graduated at Louisville (Ky.) Medical College in 1906.

CALIFORNIA

Personal.—Dr. James F. Percy, professor of clinical surgery (neoplasms), College of Medical Evangelists, Los Angeles, was guest of honor at a banquet, April 27, given by the French Hospital, where he has been attending surgeon since 1925.—Dr. Alvin E. Cerf, San Francisco, has been appointed a member of the board of medical examiners for the term expiring Jan. 15, 1944, succeeding Dr. Frederick W. Didier, Wheatland.

Syphilis Survey.—Grants have been made by the International Health Division of the Rockefeller Foundation and the California State Department of Health to support an epidemiologic and statistical study of syphilis in the San Joaquin local health district unit under the direction of Dr. Robert Dyar, Baltimore. According to the *American Journal of Public Health*, the study will last from three to five years and will include an analysis of the prevalence of syphilis and of the efficacy of control and treatment methods.

Medicodental Meeting.—At a meeting of the First District Dental Society and the Los Angeles County Medical Association in Los Angeles, May 16, the speakers will be Dr. Edward C. Rosenow, professor of bacteriology and immunology, University of Minnesota Graduate School of Medicine, Rochester, Minn., and William G. Skillen, D.D.S., professor of histology and embryology, Northwestern University Dental School, Chicago. Dr. Rosenow will discuss "Studies on the Relation of Dental Infection to Systemic Disease" and "Symptoms and Lesions Produced in Animals by the Inoculation of Streptococci Freshly Isolated from Dental and Other Foci of Infection." Dr. Skillen will speak on "Calcification, Development and Eruption of the Teeth, the Effects of Pregnancy, Prenatal and Postnatal Calcification, the Influence of Internal Secretions, Heredity." In the evening Dr. Rosenow's address will be entitled "Prevention and Elimination of Infections In and About Teeth and Other Foci of Infection: A Bacteriologic Dental and Medical Problem," and Dr. Skillen's, "Radiographic and Histologic Discussion of the Treatment of the Investing Tissues."

CONNECTICUT

Personal.—Dr. Elliott P. Joslin, Boston, has been named honorary chairman of the division of medicine and public health of the committee on university development of Yale University, New Haven. Dr. Joslin graduated at Yale in 1890. In his new appointment Dr. Joslin succeeds the late Dr. Harvey Cushing. The aim of the committee is to secure additional endowment for the medical school so that its facilities may be continued to expand.—Dr. Morton H. Chapnick has been appointed health officer of the city of Putnam.

Unlawful for Physician to Recommend Contraceptives.—In a recent decision, the Supreme Court of Errors of Connecticut said that a physician who counsels a married woman to use a spermatoicidal drug and a device for the purpose of preventing conception is guilty of an unlawful act even though the woman consulted him professionally and despite the fact that in his judgment further pregnancies would be detrimental to the "general health" of the patient (*State v. Nelson*; *Same v. Goodrich*; *Same v. McTernan*, 11 A. [2d] 856). One Connecticut law declares it to be unlawful for any person to use any drug, medicinal article or instrument for a principal act of preventing conception; another to commit an unlawful act, person who counsels in either law, the court pointed out. There was no ambiguity in the use of contraceptives so as to amend the law relating to the use of contraceptive prescribed except from its operation the use of a contraceptive prescribed

by a physician was most persuasive that the legislature did not intend that there should be such an exception. "To permit the use of contraceptives," said the court, "in all cases when in the opinion of even an honest and reputable physician pregnancy would affect 'general health' might well make it available to most women in view of the commonly known ordinary incidence and normal consequences of that condition, while it would be in the power of less ethical and conscientious practitioners to extend the field of exemption indefinitely."

DELAWARE

Personal.—Dr. William Edwin Bird, Wilmington, and Dr. Joseph S. McDaniel, Dover, have been reappointed to serve for two years as members of the state board of medical examiners.

Society News.—Dr. Thomas A. Johnson, Philadelphia, discussed "Terminal Regional Ileitis and Related Conditions" before the New Castle County Medical Society, Wilmington, April 18. A symposium on anemia was presented, March 19, by Drs. Robert O. Y. Warren and Edgar R. Miller, Wilmington, and George E. Farrar Jr., Philadelphia.

ILLINOIS

Another Typhoid Outbreak at Manteno Hospital.—Newspapers reported, April 23, that six more typhoid carriers had been discovered and isolated at the Manteno State Hospital, bringing the total of isolated carriers at the institution to ninety-two. Three persons have died of typhoid at the hospital since April 7. None of the six new carriers was from a ward in which any of the three recent deaths occurred. A search for carriers is still under way at the hospital under direction of Dr. Claude Milton Eberhart, Highland, of the state department of public health. The investigation followed an outbreak of typhoid at the institution last summer and fall when sixty deaths were reported.

State Medical Meeting in Peoria.—The one hundredth annual meeting of the Illinois State Medical Society will be held at the new Shrine Mosque and the Pere Marquette Hotel, Peoria, May 21-23, under the presidency of Dr. James H. Hutton, Chicago. Included among the out of state speakers will be:

Dr. Louis H. Newburgh, Ann Arbor, Mich., The Nature of Obesity.
Dr. Henry L. Barnett, St. Louis, Choice and Dosage of Chemotherapeutic Agents for Bacterial Infections.
Dr. Russell L. Haden, Cleveland, Selection of Cases of Splenectomy.
Dr. Tom D. Spies, Cincinnati, Diagnosis and Treatment of Common Deficiency Diseases in the Adult.
Dr. Wheelan D. Sutliff, New York, Pneumonia: Its Diagnosis and Treatment.
Dr. Charles W. Rucker, Rochester, Minn., Visual Field Changes.
Dr. Hugh R. Butt, Rochester, Clinical Application of Vitamin K.
Dr. Raymond A. Vonderlehr, Washington, D. C., Continuous Alternating Scheme of Treatment in the Control of Acquired Syphilis.
Dr. Jennings C. Litzberg, Minneapolis, Organization of Obstetrical Work in Rural Hospitals.
Dr. Ralph E. Campbell, Madison, Wis., Menstrual Disorders During the Adolescent Period.

Dr. Leonard G. Rowntree, Philadelphia, will deliver the oration in medicine on "The Role of the Kidney in Cardiorespiratory Vascular Disease," and Dr. Frank H. Lahey, Boston, the oration in surgery, on "Thyroid Disease: Its Diagnosis and Management." Included among other events taking place at the same time will be the meetings of the Physicians' Association of the Department of Public Welfare of the State of Illinois and the Central States Society of Industrial Medicine and Surgery and the veterans' service committee will meet at the Pere Marquette and Jefferson hotels, May 20-22. One of the features of the Hall of Health, which will be held in the Peoria Armory, will be the display of pictures of pioneer physicians and surgeons.

CHICAGO

Dr. Carlson to Become Emeritus Professor.—Anton J. Carlson, Ph.D., professor and chairman of the department of physiology, Division of Biological Sciences, University of Chicago, will become emeritus at the end of the current year, the university announces. Since 1929 Dr. Carlson has held a university distinguished Service Professorship. This title will now go to Fred C. Koch, Ph.D., professor and chairman of the department of biochemistry at the university. No successor to Dr. Carlson in the department of physiology has been announced. Born in Sweden in 1875, Dr. Carlson came to the United States at the age of 16 and received his doctor's degree at Stanford University in 1902. In 1904 he joined the faculty of the University of Chicago, becoming pro-

essor in 1914 and chairman of the department in 1916. Dr. Koch was born in Chicago in 1876. He took his master's degree at the University of Illinois and that of doctor of philosophy at Chicago in 1912, becoming professor in 1924. He is known for his studies in the field of hormones, enzymes and vitamins.

Alumni Reunion.—The annual faculty-alumni reunion of Northwestern University Medical School will be held May 24-25. A golf tournament at the Illinois Country Club will open the session. The scientific program will be devoted to a symposium on the gastrointestinal tract. The speakers will include:

- William Windle, Ph.D., Evanston, Fetal Swallowing, Gastrointestinal Activity and Defecation in Amnio.
- Dr. Arthur E. Mahle, The Recognition and Treatment of Common Diseases of the Esophagus.
- Dr. Eugene S. Talbot, The History, Use and Value of Gastroscopy.
- Dr. Howard B. Carroll, Treatment of Gastrointestinal Hemorrhage.
- Drs. Andrew C. Ivy and Gordon B. Faulay, Effect of Aluminum Phosphate on Mann-Williamson Dogs.
- Dr. John A. Wolfer, Relation of Biliary Tract Disease to the Pancreatic Juice Reflux.
- Dr. James P. Grier, Intestinal Obstruction, Prevention and Treatment—Use of the Miller-Abbott Tube.
- Dr. Clifford J. Barborka, Recent Advances in Our Knowledge of Vitamin Therapy and Nutrition.
- Dr. Edward W. Gibbs, One Thousand Appendectomies—Correlation Study.
- Drs. Jerrold P. Nesselrod, Evanston, and Jay M. Garner, Winnetka, Disease of the Lower Colon.
- Drs. James T. Case and Earl E. Barth, X-Ray Examination of the Gastrointestinal Tract.
- Dr. Ivy and John S. Gray, Ph.D., Urogastrome.
- C. Jefferson Farmer, Absorption of Vitamin C from the Gastrointestinal Tract.

The annual dinner will be held in the grand ballroom of the Drake Hotel. The entertainment of the evening will be supplied by the members of the graduating class under the title "Forty Frolics." Announcement is also made of the alumni luncheon in the Early American Room of the Hotel Pere Marquette, Peoria, May 22, during the annual session of the Illinois State Medical Society.

KANSAS

State Medical Meeting in Wichita.—The eighty-first annual session of the Kansas Medical Society will be held at the Wichita Forum, Wichita, May 13-16, under the presidency of Dr. Clifford C. Nesselrode, Kansas City, and with the Sedgwick County Medical Society acting as host. Included among the out of town speakers will be:

- Dr. William H. Olmsted, St. Louis, The Doctor's Own Diet.
- Dr. Raymond W. McNealy, Chicago, Preoperative and Postoperative Management of Gallbladder Patients.
- Dr. Dean M. Lierle, Iowa City, The Value of Diagnostic Bronchoscopy and Esophagoscopy in General Practice.
- Dr. Stuart W. Harrington, Rochester, Minn., Diagnosis and Surgical Treatment of Diaphragmatic Hernias.
- Dr. Arthur C. Curtis, Ann Arbor, Mich., Treatment of Edema.
- Dr. Julian D. Boyd, Iowa City, The Part Played by Endocrine Disturbances in Pediatric Practice.
- Dr. Cecil S. O'Brien, Iowa City, Ocular Signs of Certain Systemic Diseases.
- Dr. Earl D. McBride, Oklahoma City, The Role of Surgery in Painful Feet.
- Dr. Charles E. Galloway, Evanston, Ill., Prevention of Preeclamptic Toxemia.
- Dr. Thomas L. ... Differential Diagnosis of Abdominal Pain from ...
- Alphonse M. ... St. Louis, The National Aspects of Medical Economics.
- Dr. Walter L. Palmer, Chicago, Treatment of Chronic Indigestion.
- Dr. Ralph H. Major, Kansas City, ... Pneumonia.
- Dr. Soma Weiss, Boston, Cardiac ... Edema.
- Dr. Thomas G. Orr, Kansas City, Treatment of Acute Intestinal Obstruction.

At the annual banquet Mr. John E. Rogers, Tulsa, attorney and past president of the Tulsa Chamber of Commerce, will be the speaker. Kansas physicians on the program will include:

- Dr. Daniel V. Conwell, Halstead, A Clinical Approach to the Migraine Problem—Preventive Treatment.
- Dr. Charles C. Hawke, Winfield, Diagnostic Clinic on Feeble-mindedness.
- Dr. John W. Randall, Marysville, Tetanus—A Report of Three Cases.
- Dr. Aaron A. Sprong, Sterling, Radiation of Leukemia.
- Dr. Karl E. Voldeng, Wellington, Rectal Carcinoma.
- Dr. Richard E. Speirs, Dodge City, Immediate Repair of Flexor Tendons.
- Dr. Ray A. West, Wichita, A County's Approach to Medical Economics.
- Erskine Wyman, Topeka, state industrial commissioner, The Physician's Responsibility in Industrial Work.
- Dr. Fred P. Helm, Topeka, The State Board of Health and the Private Practitioner.
- Dr. Orville R. Clark, Topeka, Spinal Anesthesia in General Surgery—Report of 400 Cases.

"A Day for the Secretary" has been set aside for girls employed in the offices of members of the state society. The program will be devoted to a discussion of speech, personality, office management and general problems confronting doctors' assistants. The woman's auxiliary will meet during the annual session of the state society, and the Kansas State Hospital Association will meet May 16-17.

KENTUCKY

Society News.—Dr. Edwin C. Hamblein, Durham, N. C., addressed the Jefferson County Medical Society, Louisville, March 18, on the endocrine treatment of functional uterine bleeding and ovarian sterility, as a guest of the Louisville Obstetrical and Gynecological Society. —Dr. Joseph A. Bowen, Louisville, addressed the Whitley County Medical Society, Corbin, March 11, on "The Significance of Blood in the Urine." —Drs. Willard O. Tirrill Jr. and Albert Weinstein, Nashville, addressed the Christian County Medical Association, Hopkinsville, March 19, on "Practical Aspects of Sterility" and "Diagnosis and Treatment of Undulant Fever" respectively. Mr. Walker Higgins, Hopkinsville, pharmacist, spoke on "Some Important U. S. P. and N. F. Preparations." —Dr. Morris Flexner, Louisville, among others, addressed the Hardin County Medical Society, Elizabethtown, March 14, on "The Technic of Contraception." —Dr. Rankin C. Blount, Lexington, addressed the Harrison County Medical Society, Cynthia, March 4, on "Management of the Psychoneurotic Patient." —At a meeting of the Boyd County Medical Society, Ashland, March 5, Dr. Everett R. Veirs, Ashland, discussed diseases of the ear and mastoids.

MASSACHUSETTS

University News.—Dr. Charles R. Austrian, Baltimore, lectured at Harvard Medical School, Boston, April 2, on "The Care of the Patient." Donald D. Van Slyke, Ph.D., New York, delivered the annual Nu Sigma Nu lecture recently on "Renal Physiology."

State Medical Meeting in Boston.—The Massachusetts Medical Society will hold its one hundred and fifty-ninth annual meeting at the Copley-Plaza Hotel, Boston, May 21-22, under the presidency of Dr. Walter G. Phippen, Salem. Among the out of state speakers will be:

- Dr. Reed M. Nesbit, Ann Arbor, Mich., Treatment of Prostatic Obstruction.
- Dr. Wilson G. Snellie, New York, The Common Cold.
- Dr. Esmond R. Long, Philadelphia, Pathogenesis of Primary and Reinfection Types of Pulmonary Tuberculosis.
- Dr. Francis G. Blake, New Haven, Conn., Treatment of Pneumococcal Pneumonia.
- Dr. Thomas Parran, Washington, D. C., The Public Health Aspects of Syphilis as It Concerns the General Practitioner.

A symposium on sulfanilamide will be presented Wednesday afternoon by the following: Drs. Conrad Wesselhoeft, "Management of Acute Streptococcal Infections of the Upper Respiratory Tract"; Joseph P. Cohen, "Treatment of Puerperal Sepsis"; Ernest Granville Crabtree, "Treatment of Urinary Tract Infections by Specific Therapy"; Chester S. Keefer, "Diagnosis and Treatment of Gonorrheal Arthritis"; Edwin H. Place, "Treatment of Meningococcus Meningitis," and Arthur M. Greenwood, "The Possible Skin Manifestations of Sulfanilamide." All the speakers are from Boston. Dr. Perrin H. Long, Baltimore, will give the summary. The Shattuck Lecture will be delivered at the annual dinner Tuesday evening by Dr. Ernest W. Goodpasture, Nashville, Tenn., on "Immunity to Virus Infections, Some Theoretical and Practical Considerations." Dr. William Jason Mixer will give the annual oration on "Neurologic Surgery in Massachusetts."

NEW MEXICO

State Medical Meeting.—The annual session of the New Mexico Medical Society will be held May 27-29 at the Hotel Hilton, Albuquerque, under the presidency of Dr. George T. Colvard, Deming. The entire program will be presented by guest speakers. Among them will be:

- Dr. Willis C. Campbell, Memphis, Tenn., Treatment of Acute Fractures of the Neck of the Femur.
- Dr. John L. Emmett, Rochester, Minn., Renal Tuberculosis.
- Dr. Ben D. Massey, Pasadena, Calif., Present Status of the Treatment of Urinary Infections.
- Dr. Frederick S. Wetherell, Syracuse, N. Y., The Role of the General Practitioner in the Curing of Cancer.
- Dr. Richard L. Sutton Jr., Kansas City, Mo., Skin Diseases: Diagnosis and Treatment.
- Dr. Verne C. Hunt, Los Angeles, Gastric Surgery.
- Dr. Ray M. Balyeat, Oklahoma City, Diagnosis and Treatment of the Common Allergic Manifestations as Seen by the General Practitioner.
- Dr. Wilford W. Barber, Denver, Clinical Significance of Abdominal Pain in Children.
- Dr. Albert Soiland, Los Angeles, Further Notes on the Clinical Aspect of Ultra Short Wavelength X-Rays.
- Dr. Paul M. Bassel, Temple, Texas, Frequency of Spinal Cord Tumors and Their Diagnosis.

Dr. Wetherell will also address a luncheon meeting on medical economics; Dr. Sutton and Dr. James R. Jaeger, Denver, will present travelogues at an evening smoker, and Drs. Balyeat and Soiland will make luncheon addresses.

NEW YORK

Hospital Addition Dedicated at Binghamton.—A new pavilion at the Binghamton City Hospital, which has been named the Doctors' Memorial Building, was dedicated with an all-day ceremony April 4. Dr. Morris Fishbein, Chicago, Editor of THE JOURNAL, made the dedicatory address in the morning, on "Medicine and the Changing Social Order" and a luncheon on "A Real National Health Program." The new hospital addition is six stories high and contains 113 private rooms and an auditorium. It is fitted with the most modern appointments and was erected at a cost of about \$450,000.

Society News.—Dr. Samuel R. Meaker, Boston, addressed the Medical Society of the County of Albany in Albany, March 27, on "Management of Sterility by the General Practitioner."—Dr. Frederick A. Collier, Ann Arbor, Mich., addressed the Rochester Academy of Medicine, March 6, on "Fluid and Electrolyte Balance in the Surgical Patient."—Dr. Wilson G. Smilie, New York, addressed the Medical Society of the County of Monroe, Rochester, March 19, on "Trends in Public Health."—Dr. Loring T. Swaim, Boston, addressed the Nassau County Medical Society, Garden City, March 26, on "Treatment of Arthritis: Practical Suggestions for the General Practitioner."—Dr. Samuel A. Thompson and Milton J. Raisbeck, New York, addressed the Medical Society of the County of Rensselaer, Troy, April 9, on "Surgical Treatment of Coronary Artery Disease."—Dr. Charles A. Weymuller, Brooklyn, addressed the Onondaga County Medical Society, Syracuse, April 2, on recent advances in pediatrics.

New York City

Meeting of Pharmacists.—The Association for the Advancement of Professional Pharmacy in cooperation with the medical societies of Bronx, Kings, New York, Queens and Westchester counties has arranged a joint meeting to be held May 28 at the Hotel Pennsylvania. The topic to be discussed is "Medicine and Pharmacy in the American Health Program" with the following speakers: Dr. Terry M. Townsend, president, Medical Society of the State of New York; Dr. Nathan B. Van Eten, President-Elect of the American Medical Association; Robert L. Swain, Pharm.D., former president of the American Pharmaceutical Association, and Evander F. Kelly, Pharm.D., Washington, D. C., secretary of the American Pharmaceutical Association and editor of its journal.

Society News.—Drs. Thomas Francis Jr. and Ralph S. Muckenfuss addressed the Bronx County Medical Society, March 20, on "Recent Advances in Our Knowledge of Filtrable Virus Diseases."—Dr. Henry Dawson Furniss addressed the Bronx Gynecological and Obstetrical Society, March 19, on "Urethral and Vesical Fistulas."—Speakers at a meeting of the Medical Society of the County of Kings, March 19, were Dr. Albert F. R. Andresen, on "Medical Problems in Dentistry"; Dr. Walter A. Coakley, "Surgical Aspects of Dental Problems as They Affect the Physician," and Charles A. Wilkie, D.D.S., "Dental Diagnostic Problems."—At a meeting of the Brooklyn Thoracic Society, March 15, the speakers were Drs. Herman E. Wirth on "The Weltman Serum Coagulation Reaction in Pulmonary Tuberculosis"; Biagio Battaglia, "An Evaluation of Bed Rest Therapy in Clinical Pulmonary Tuberculosis," and Irving B. Gold, "End Results in Cases of Pulmonary Tuberculosis Treated by Artificial Pneumothorax."

Long Island College Marks Eightieth Year.—The Long Island College of Medicine held a banquet, March 29, at the Hotel Roosevelt celebrating the eightieth anniversary of its founding. Dr. Frank L. Babbott, president of the college, was toastmaster and the speakers were William Allan Neilson, Ph.D., president emeritus of Smith College, Northampton, Mass., and the Honorable Alfred E. Smith. The Long Island medical school began March 29, 1860, as the Long Island College Hospital, a hospital and medical school combined to place emphasis on clinical teaching. The faculty consisted of eight professors: Drs. Austin Flint, surgery; James D. Trask, pathology; Frank H. Hamilton, surgery; R. Ogden Doremus, chemistry and toxicology; John C. Dalton, obstetrics and diseases of women and children; Joseph C. Hutchison, gynecology and operative surgery; DeWitt C. Enos, general and descriptive anatomy, and Edwin N. Chapman, materia medica and therapeutics. A Dr. J. G. Johnson was demonstrator of anatomy. The first class had eighteen students. By 1870 a

new building was necessary to accommodate larger numbers of patients with the growth of Brooklyn; in 1881 a journal was published by the staff; in 1883 a nurses' training school was organized. In 1888, Dr. Cornelius Hoagland established the first bacteriological laboratory in the United States. Another building was added in 1898 and early in the twentieth century a new hospital building was made possible by various donors. After the World War, clinical facilities of other Brooklyn hospitals were included in the teaching plan and the school and hospital expanded it seemed wise to separate the two activities, and this was done in 1930. Since that year a laboratory for physiology, bacteriology and pathology and a recreation center have been given to the school. Long Island College of Medicine has graduated about 7,000 physicians. It now has a student body of 350. Among special guests invited to the banquet were Dr. James D. Trask, New Haven, Conn., grandson of Dr. James D. Trask, a member of the first faculty; Harry M. Ayres, Ph.D., grandson of Dr. Daniel Ayres, a member of the organizational faculty, and Mr. William H. Dudley, a grandson of Dr. William H. Dudley, a member of the first council.

NORTH CAROLINA

Society News.—Dr. Edgar F. Fincher, Atlanta, Ga., addressed the Buncombe County Medical Society, Asheville, April 15, on "Brain Tumors."—At a meeting of the Mecklenburg County Medical Society, Charlotte, March 26, the speakers were Drs. Calvin Graham Reid on "Medical Treatment of Massive Gastric Hemorrhage"; James W. Gibbon, "Postoperative Gastrojejunal Ulcers" and William S. Cornell, "Selection of Patients with Gallbladder Disease."

Grant for Syphilis Campaign.—The Reynolds Foundation recently allotted \$200,000 to continue the campaign against syphilis in North Carolina. Sixteen counties and eight cities have programs financed by funds provided by this foundation, receiving \$158,000 from federal funds and the remaining twenty-four counties in the state do not participate in either fund. This is the third grant from the foundation and is twice the original grant.

Hospital Conference in Winston-Salem.—The Carolinas-Virginias hospital conference was held in Winston-Salem, April 4-6, with the following speakers, among others: Dr. Watson S. Rankin, Charlotte, "Economic Classification of Patients"; Earl W. Williamson, Chicago, "Hospital Standards and How to Meet Them"; Arnold Emch, Ph.D., Chicago, "Place of the Voluntary Hospital in the Federal Health Program." Dr. Frederick C. Hubbard, North Wilkesboro, was elected president of the North Carolina Hospital Association at a business meeting of that organization.

OHIO

Meeting of Anesthetists.—The Ohio Society of Anesthetists will hold its annual meeting jointly with the annual meeting of the American Society of Anesthetists in Cincinnati, May 16. The day's program will include a demonstration at the Jewish Hospital of the technique of determination of peripheral blood flow by Dr. David I. Abramson and his staff. In the afternoon there will be addresses, among others, by Dr. Ralph M. Waters, Madison, Wis., on "The Relationship of Pain Relieving Drugs to Respiratory Morbidity"; Samuel Iglauer, Cincinnati, "Relation of the Respiratory Passages to Anesthesia," and Harry E. Landt, Cincinnati, "Experiments in Rebreathing."

Professor of Biochemistry Dies.—Glenn E. Cullen, Ph.D., professor of biochemistry at the University of Cincinnati Graduate School of Arts and Sciences and professor of pediatric research in the college of medicine since 1931, died, April 11, of coronary occlusion, aged 50. Dr. Cullen, a native of Ohio, took his doctorate at Columbia University in 1917. From 1913 to 1922 he was research chemist at the Rockefeller Institute for Medical Research, New York; from 1922 to 1924, associate professor of research medicine at the University of Pennsylvania School of Medicine, Philadelphia, and from 1924 to 1931 professor of biochemistry at Vanderbilt University School of Medicine, Nashville, Tenn. In addition to his teaching positions he had been director of laboratories of the Children's Hospital Research Foundation at Cincinnati since 1931. Dr. Cullen was a past president of the Society for Experimental Medicine and Biology and of the American Chemical Society, Harvey Society of New York, Society for Clinical Research, Society for Pediatric Research, American Institute

of Nutrition, American Academy of Pediatrics, National Research Council, American Association for the Advancement of Science and an associate member of the American Medical Association.

OKLAHOMA

Health Department to Open Library.—The state health department is shortly to open a library in its offices in Oklahoma City with material available to public health workers and private physicians. Information will be furnished to physicians on request on prevalence and trends in diseases, and books on public health will be made available to health workers in units throughout the state.

Society News.—Dr. Frank M. Keen, Shawnee, addressed the Pottawatomie County Medical Society, Shawnee, recently on intestinal obstruction. —Drs. George E. Johnson and Weldon D. Blassingame addressed the Carter County Medical Society recently in Ardmore on "The Chronic Prostate" and "Diarrhea in Infants" respectively. —Drs. Wayne C. Bartlett and Arthur L. Ashmore, Wichita, Kan., addressed the Kay County Medical Society recently in Ponca City on "Goiter Surgery" and "Tuberculosis" respectively. —Dr. George H. Kimball, Oklahoma City, addressed the Osage County Medical Society, Pawhuska, recently on "Principles of Plastic Surgery." —Dr. Robert J. Crossen, St. Louis, addressed the Tulsa County Medical Society, Tulsa, March 25, on "Gynecologic Endocrine Disturbances." —Drs. Ernest M. Seydell and Wilbur G. Gillett, Wichita, Kan., addressed the Garfield County Medical Society, Enid, recently on "Acute Otitis Media" and "Lesions of the Visual Pathway," respectively.

PENNSYLVANIA

Outbreaks of Communicable Disease.—Thirty cases of diphtheria were reported in and near Coatesville in the ten days preceding April 8, according to a newspaper account. Two children died. There were three cases in adults. —Six cases of typhoid with one death have occurred in Plumsteadville, a village in Bucks County, newspapers reported April 16. —The ninety-fifth person in Luzerne County to be stricken with meningitis since January 1 was reported April 26; the twenty-ninth death occurred April 12 in Wilkes-Barre.

Public Health Association Meeting.—The fifteenth annual meeting of the Pennsylvania Public Health Association will be held at the headquarters of the Philadelphia County Medical Society, Philadelphia, May 23, under the presidency of Mr. Harold H. Keller, Philadelphia. Among the speakers will be:

Dr. Paul A. Keeney, Harrisburg, Opportunity for Practicing Physicians to Advance Public Health Work.
Dr. Joseph W. Mountain, U. S. Public Health Service, Washington, D. C., Correlation of State and Local Public Health Service.
Major Gen. Charles R. Reynolds, Harrisburg, Pennsylvania's Tuberculosis Program.
Dr. Reginald M. Atwater, New York, Our Professional Opportunity Today.

At a luncheon meeting Dr. John J. Shaw, state secretary of health, will speak on "Pennsylvania's Public Health Program" and at the banquet in the evening Dr. Edward S. Godfrey Jr., state health commissioner of New York, Albany, will speak on "A Modern Health Program."

Philadelphia

Dinner to Dr. Shaw.—More than 200 physicians honored Dr. John J. Shaw, state secretary of health, at a testimonial dinner at the Union League, April 25, in recognition of his official services and the recent award to him of the Strittmatter Prize by the Philadelphia County Medical Society. Dr. Rufus Reeves, president of the county medical society, presided at the dinner and the speakers were: Hon. Robert E. Lamberton, mayor of Philadelphia; Drs. Charles H. Henninger, Pittsburgh, president of the Medical Society of the State of Pennsylvania, Erval R. Coffey of the U. S. Public Health Service, Washington, D. C., and Jesse Lynn Mahaffey, commissioner of health of New Jersey, Trenton; Thomas S. Gates, LL.D., president of the University of Pennsylvania, and Mr. Harold H. Keller, president of the Pennsylvania Public Health Association.

Pittsburgh

Institute for Negro Physicians.—The first Postgraduate Institute on Public Health for Negro Physicians to be held in Pennsylvania was conducted in Pittsburgh April 28 to May 2 under the auspices of the Tuberculosis League of Pittsburgh, the Pennsylvania Tuberculosis Society and the Pennsylvania Medical, Dental and Pharmaceutical Society. Subjects discussed included tuberculosis, syphilis, maternal welfare and

child health. Guest teachers included Drs. Howard M. Payne, of Howard University College of Medicine, Washington, D. C., on tuberculosis and Theodore K. Lawless, Chicago, on syphilis.

Society News.—Speakers at the annual meeting of the Allegheny County Medical Society, May 14, will be Drs. James Alexander Clarke Jr., Philadelphia, on "Clinical Importance of Minor Allergic Conditions"; Fredrick A. Willius, Rochester, Minn., "Coronary Disease"; Arthur M. Shipley, Baltimore, "The Acute Surgical Abdomen" and Thomas Francis Jr., New York, "Progress of Studies in Influenza." Speakers before the society, April 16, were Drs. Ernest W. Willetts and Verner B. Callomon, on "Treatment of Pneumococcic Pneumonia," discussing sulfapyridine and sulfathiazole, respectively; Paul B. Steele, "New Treatment for Perthes' Disease"; Robert C. Grauer, Chester F. Beall and George R. Wilson, "Clinical Use of Stilbestrol in Menopause and Postpartum Cases." —The Pittsburgh Orthopedic Club at a meeting, March 28, presented a symposium on "Low Back and Referred Pain" with the following speakers: Drs. Harry M. Margolis, Stuart N. Rowe, Leslie H. Osmond, Richard C. Ritter, John Huber Wagner and Mayer S. Deroy. —Dr. Clyde Leroy Deming, New Haven, Conn., addressed the Pittsburgh Urological Association, April 8, on "A Clinic's Experience with Tumors of the Genito-Urinary Tract." —Dr. Richard B. Cattell, Boston, addressed the Pittsburgh Academy of Medicine, April 9, on "Cancer of the Rectum."

SOUTH DAKOTA

State Medical Meeting at Watertown.—The annual meeting of the South Dakota State Medical Association will be held in Watertown, May 20-22. Among the speakers will be:

Dr. Ralph K. Ghormley, Rochester, Minn., Choice of Bone Graft Methods in Bone and Joint Surgery; Nonoperative Fracture Treatment.
Dr. Raymond N. Bieter, Minneapolis, Serum and Specific Chemotherapeutics of Pneumococcus Infections; Newer Drug Therapy.
Dr. Louis A. Brunsting, Rochester, Minn., Helps in Treatment of Common Diseases of the Skin.
Dr. Albert V. Stoesser, Minneapolis, Preventive Allergy in Infancy and Childhood.
Dr. Robert G. Allison, Minneapolis, X-Ray Therapy.
Dr. John W. Duncan, Omaha, Diagnosis and Treatment of Carcinoma of the Breast.
Dr. Charles B. Wright, Minneapolis, subject not announced.
Dr. John M. Waugh, Rochester, Minn., Endometriosis.
Dr. William A. O'Brien, Minneapolis, subject not announced.
Dr. Frank W. Haas, Yankton, Insulin and Metrazol Treatment of Mental Diseases.
Harold D. McEwen, Ph.D., Vermilion, Some Recent Advances in Our Knowledge of Vitamins.

TENNESSEE

Society News.—At a meeting of the Dyer, Lake and Crockett Counties Medical Society in Dyersburg, April 3, the speakers were Drs. William P. Watson, Dyersburg, on "Carcinoma of the Uterus"; Mike W. Holehan, Memphis, "Etymology, Pathology and Rational Treatment for Hemorrhoids," and Dick C. McCool, Memphis, "The Nervous Breakdown." —Drs. Matthew Wilson Searight and Henry B. Gotten, Memphis, addressed the Fayette and Hardeman Counties Medical Society recently on "Organotherapy in Gynecology" and "Differentiation of Organic and Referred Symptoms of Heart Disease in Middle-Aged People" respectively. —Dr. Ralph H. Monger, Knoxville, led a round table discussion at a meeting of the Sullivan-Johnson Counties Medical Society, Kingsport, April 3, on "Value of Laboratory Procedure in Bedside Medicine." —Dr. James P. Rousseau, Winston-Salem, N. C., addressed the Washington County Medical Society, Johnson City, April 4, on "Roentgen Therapy in Infectious Diseases."

VIRGINIA

Semiannual University Postgraduate Clinic.—The twenty-fifth semiannual postgraduate clinic was presented by the University of Virginia Medical Department at Charlottesville, April 5-6. A special feature was the first James Carroll Flippin Memorial Lecture, in honor of the late Dean Flippin. The lecture was delivered by Dr. William McCully James, Panama, R. P., on "Observations of Malaria." Dr. James also presented a paper on amebiasis. Other speakers on the program were:

Dr. John W. Oliphant, U. S. Public Health Service, Washington, D. C., The Present Status of Influenza Research.
Dr. Edward Francis, U. S. Public Health Service, Washington, D. C., Tularemia.
Dr. Albert V. Hardy, consultant in the U. S. Public Health Service, New York, Undulant Fever.
Dr. Joseph Earle Moore, Baltimore, Syphilis.
Dr. Rolla Eugene Dyer, U. S. Public Health Service, Washington, D. C., The Rickettsial Diseases.

MEDICAL NEWS

1941

WASHINGTON

State Obstetric Meeting.—The Washington State Obstetrical Association held its spring meeting in Seattle, April 6, with the following speakers, among others: Drs. Byron F. Francis, "Tuberculosis in Pregnancy"; Frederick B. Exner, "Significance of Thymic Enlargement"; Hugh H. Nuckolls, "Recurring Fetal Abnormalities"; and John F. Fiorino, "The Use of Testosterone Propionate in Gynecology." An afternoon session was devoted to round table discussions on antepartum care, classification and mensuration of the pelvis and obstetric analgesia and anesthesia.

WEST VIRGINIA

Society News.—Dr. Silas H. Starr, Louisville, Ky., addressed the Fayette County Medical Society, Montgomery, April 9, on "Toxemias of Pregnancy."—Dr. George P. Müller, Philadelphia, addressed the Ohio County Medical Society, Wheeling, April 5, on acute appendicitis. The speaker on April 19 was Dr. Louis J. Karnosh, Cleveland, on "Neuralgia, Neuritis and Neurosis."—The spring meeting of the Greenbrier Interstate Medical and Surgical Society was held at White Sulphur Springs, April 6, with the following speakers: Drs. James Edwin Wood Jr., Charlottesville, Va., "Recent Advances in Hypertension and Their Practical Significance"; Claude C. Coleman, Richmond, Va., "Treatment of the Shoulder Surgical Lesions Causing Chronic Pain About the Shoulder and Lower Back"; Richard Kovacs, New York, "Spasms and Health Resorts in the United States and Abroad," and Bror S. Troedsson, Orange, N. J., "Recent Research in Refrigeration Therapy."

HAWAII

Postgraduate Lectures.—Dr. Isidor S. Ravdin, George Leib Harrison professor of surgery, University of Pennsylvania School of Medicine, Philadelphia, will present a series of postgraduate lectures under the auspices of the Honolulu County Medical Society during May. He will address the Hawaii Territorial Medical Association at its annual session on Maui, May 17-19. He will then lecture for two days in Hilo, following which he will return to Honolulu to conduct a two weeks course.

GENERAL

Ex-Residents of American Hospital of Paris.—During the annual session of the American Medical Association, New York, all ex-residents of the American Hospital of Paris are invited to attend a dinner to be held at Charles French Restaurant, 452 Sixth Avenue, June 13, 7 p. m. Further information may be had from Dr. John R. Murphy, 121 East Sixty-First Street, New York.

Dr. Meyer Heads National Committee for Mental Hygiene.—Dr. Adolf Meyer, Baltimore, has been elected president of the National Committee for Mental Hygiene, the board of directors announces. He succeeds Dr. Arthur H. Ruggles, Providence, R. I. Dr. Meyer collaborated with Clifford Beers in the founding of the committee in 1909 and gave the mental hygiene movement its name.

No June Examinations in Dermatology.—In view of the small number of applicants who have signed their intention of taking the examination of the American Board of Dermatology and Syphilology in June at the time of the meeting of the American Medical Association in New York, the board will not hold an examination at that time. The next examination will be held immediately before the meeting of the American Academy of Dermatology and Syphilology next December in Chicago.

Fraudulent Salesman.—A Wisconsin physician reports the activities of a salesman of medical supplies who gave the name J. R. Rodgers and claimed to represent "Rodgers and Company" of Chicago. He took an order for a medicine case fitted with bottles, thermometers, syringes and other supplies. When the materials did not arrive the physician wrote a letter to the address given and his letter was returned marked "Not There." This man was about 5 feet 8 inches tall, about 55 years of age and wore a thirty-second degree Masonic emblem.

Society News.—Dr. Forrest L. Loveland, Topeka, Kan., was made president of the National Conference on Medical Service at its meeting in Chicago recently.—Dr. Harold M. Camp, Monmouth, Ill., was chosen secretary.—Dr. Arthur G. Cranch, New York, addressed the International Acetylene

Association at its annual meeting in Milwaukee, April 10-12, on "Health Aspects of the Oxyacetylene Process." Drs. Adolph G. Kammer, East Chicago, Ind., Oscar A. Sander, Milwaukee, and Eugene L. Walsh, Chicago, discussed the paper.

Fraternity Luncheons.—The medical fraternities Phi Beta Pi and Omega Upsilon Phi will hold a joint luncheon at the Hotel Waldorf-Astoria at noon Wednesday, June 12. Dr. Frederick Lee Liebold, 14 East Ninetieth Street, New York, is the chairman.—The annual Nu Sigma Nu luncheon will be held at the Hotel Waldorf-Astoria, New York, Wednesday, June 12. The meeting will be in charge of the New York Alumni Association, of which Dr. Arthur F. Warner, 667 Madison Avenue, New York, is president. Dr. Thomas Turley Mackie will be the chief speaker.

Pacific Coast Surgical Meeting.—The Pacific Coast Surgical Association held its annual meeting in Portland, Ore., April 3-6, under the presidency of Dr. Richard B. Dillehunt, Portland. Among the speakers were Drs. Edwin E. Osgood, Portland, on "Comparative Effectiveness of Marrow Culture"; Thomas M. Joyce and Frank R. Menne, Portland, Agents in Staphylococcus Viridans Infections of Marrow Culture"; Thomas M. Joyce and Frank R. Menne, Portland, "Uncommon Tumors of the Cervical Region," and Charles T. Sturgeon, Los Angeles, "Hypopharynx." Dr. Sturgeon was elected president; Drs. Homer D. Dudley, Seattle, and William K. Livingston, Portland, were elected vice presidents and Dr. Harry Glenn Bell, San Francisco, was reelected secretary. The 1941 meeting will be in Los Angeles in February.

Phillips Medal Awarded to Dr. Dubos.—The American College of Physicians at its annual meeting in Cleveland, April 4, awarded the John Phillips Memorial Medal to René J. Dubos, Ph.D., associate member of the Rockefeller Institute for Medical Research, New York, for his work in isolating from soil micro-organisms chemicals effective against pathogenic bacteria. Dr. Dubos delivered a paper entitled "Effect of Specific Agents Extracted from Soil Micro-Organisms on Experimental Bacterial Infections." A native of France, Dr. Dubos took his doctorate at Rutgers University, New Brunswick, N. J., in 1927, working as research assistant in soil microbiology at the New Jersey Experiment Station from 1924 to 1927. He has been associated with the Rockefeller Institute since 1927.

American Laryngological Association.—The sixty-second annual meeting of the American Laryngological Association will be held, May 27-29, at the Westchester Country Club, Rye, N. Y., under the presidency of Dr. James A. Babbitt, Philadelphia. Among the speakers will be:

Dr. Ralph A. Fenton, Portland, Ore., Certain Reactions of Laryngeal Tissues to Medicinal Agents.
Dr. Chevalier Jackson, Philadelphia, Benign and Malignant Tumors of the Jaw.
Dr. Frank R. Spencer, Boulder, Colo., Myasthenia Laryngis.
Drs. Lee W. Dean, Alfred J. Cone and Sherwood Moore, St. Louis, Use of Laminograms in Laryngology.
Dr. Samuel Salinger, Chicago, Radium in Carcinoma of the Larynx.
Dr. Westley M. Hunt, New York, Interrelations of the Ductless Glands and Otolaryngology.
Dr. John L. Myers, Kansas City, Mo., Influence of Tobacco Smoking on Health.

Regional Meeting on Physical Therapy.—The Southern section of the American Congress of Physical Therapy will hold a seminar and scientific program, May 20-21, in Atlanta, Ga., at the Atlanta Biltmore Hotel. The speakers will include:

Dr. Earl C. Elkins, Rochester, Minn., High Frequency Currents in Medicine.
Dr. William K. Ishmael, Oklahoma City, Combined Autohemotherapy and Fever Therapy in Rheumatic Disease.
Dr. Nathan H. Palmer, New Orleans, Physical Therapy in Fractures.
Dr. John D. Currence, New York, Newer Developments in the Treatment of Arthritis.
Dr. Walter J. Zeiter, Cleveland, Clinical Application of Short Wave Diathermy.

One session will be held jointly with the Fulton County Medical Society.

Officers of American Societies.—At the annual meeting of the Federation of American Societies for Experimental Biology in New Orleans as follows, according to Science:

American Physiological Society: Dr. Andrew C. Ivy, Chicago, president, and Philip Bard, Ph.D., Baltimore, reelected secretary.
American Society of Biological Chemists: William C. Rose, Ph.D., Urbana, Ill., president; Rudolph J. Anderson, Ph.D., New Haven, Conn., vice president, and Charles G. King, Ph.D., Pittsburgh, secretary.
American Society of Pharmacology and Experimental Therapeutics: Dr. Eugene M. K. Gelling, Chicago, president; Carl F. Schmidt, Philadelphia, vice president, and Gustave P. Grabfield, Boston, secretary.

American Society for Experimental Pathology: Dr. Shields Warren, Boston, president; Dr. Jesse L. Bollman, Rochester, Minn., vice president, and Dr. Harry P. Smith, Iowa City, secretary.

The 1941 meeting of the federation will be held in Chicago in April.

Changes in Status of Licensure.—The Massachusetts Department of Registration in Medicine announces the following:

Dr. William M. Walsh, Dorchester, license restored, February 29.

The Minnesota State Board of Medical Examiners announces the following:

Dr. Iyer S. Benson, Willmar, license revoked Nov. 3, 1939, following his conviction for performing a criminal abortion.

The New York State Education Department reports the following:

The license of Dr. Harold E. Simmonds, Colorado Springs, Colo., which was suspended in 1937, was restored in November 1939.

Dr. Benjamin Auster, New York, license restored February 29, after six months' suspension.

Dr. Sidney Monte Barth, Brooklyn, license restored recently after six months' suspension.

Association on Mental Deficiency.—The sixty-fourth annual convention of the American Association on Mental Deficiency will be held at Haddon Hall, Atlantic City, N. J., May 22-25, under the presidency of Fred Kuhlmann, Ph.D., head of the bureau of mental examinations, state division of social welfare, St. Paul. The program will include the following papers, among others:

Dr. Harry Moskowitz, New York, Benzadrine Therapy in the Mentally Handicapped.

Dr. William Mary Stephens, Chicago, Preliminary Report on Study of Vitamin C Effects in Truant Children in Chicago Parental Home.

Harold Himwich, Ph.D., Albany, N. Y., Cerebral Metabolism in Mongolian Idiocy and Phenylpyruvic Oligophrenia.

Dr. Joseph F. Hughes, Philadelphia, Some Electrical Signs of Central Nervous System Activity.

George B. Kreczcr, Ph.D., Letchworth Village, Thiclds, N. Y., Electro-Encephalographic Studies of the Mentally Deficient: Some Theoretical Implications.

Dr. S. Bernard Wortis, New York, Retinitis Pigmentosa and Associated Mental Deficiency.

Dr. George A. Jarvis, Thiclds, N. Y., Neuropathologic Studies in Mental Deficiency.

Awards for Observations on Epilepsy.—The recently organized Laymen's League Against Epilepsy announces two annual awards of \$100 each for the best original unpublished observations or investigations bearing on the subject of epilepsy. One award will be made for work done in a state epileptic colony or mental hospital the other for work done elsewhere. Clinical as well as laboratory studies will be welcomed, the announcement states. Since one object of the award is to encourage junior workers, the committee will take into consideration the facilities of the authors. The committee will consist of the president of the American League Against Epilepsy, the chairman of the section on convulsive disorders of the American Psychiatric Association and a third physician chosen by the officers of the Laymen's League. It is hoped that winning contributions will be presented before the annual joint scientific session of the first two of these organizations. Contributions should be submitted by next December 15. Further information can be obtained from the secretary of the Laymen's League, Mrs. N. Bond Fleming, 25 Shattuck Street, Boston.

Bequests and Donations.—The following bequests and donations for medical purposes have recently been announced:

Presbyterian and Children's Memorial hospitals, Chicago, \$50,000 each by the will of the late James Simpson for endowment of the Mr. and Mrs. James Simpson Memorial Wards.

University of Rochester, New York, a gift of \$45,000 from Ernest L. Woodward to support research on epilepsy by Dr. William P. Vau Wagenen, associate professor of neurologic surgery at the school of medicine.

St. Luke's Hospital, New York, \$10,000 from an anonymous donor for research in cancer.

Jewish Hospital, Philadelphia, \$31,089 from the estate of Simon Silberman, who died in 1883; the bequest became available on the death of Mr. Silberman's daughter recently.

St. Luke's Hospital, Bethlehem, Pa., \$200,000 from the Bethlehem Steel Company to aid in financing an addition to the hospital.

Germantown Hospital and Dispensary, Philadelphia, \$16,000 by the will of the late Elizabeth Witte.

Hospital for Joint Diseases, New York, \$10,000 by the will of the late Miss Ida Meyer.

Swedish Covenant Hospital, Chicago, \$8,000 by the will of the late Dr. Oscar E. Grant.

Methodist Hospital, Brooklyn, \$2,500 by the will of the late Sarah E. Spence.

St. Mary's Hospital, New York, \$50,000; Long Island College, St. Peter's, Wyckoff Heights, St. Catherine's and St. Vincent's hospitals, Brooklyn; Mary Immaculate Hospital, Jamaica, \$30,000 each by the will of the late Mrs. Marie S. Engert-Colman, Brooklyn.

Victory Memorial Hospital, Waukegan, Ill., \$250,000, and Evanston Hospital, Evanston, Ill., \$250,000 by the will of Mrs. Clara A. Abbott, widow of Dr. Wallace C. Abbott, founder of the Abbott Laboratories, North Chicago, Ill.

CANADA

Society News.—Dr. Herman L. Kretschmer, Chicago, addressed the Academy of Medicine of Toronto, March 5, on "The Present Status of Transurethral Resection."—Dr. David D. Freeze, Vancouver, addressed the Vancouver Medical Association, March 5, on "Trends in Anesthesia."

Personal.—Dr. Wilder G. Penfield, professor of neurology and neurologic surgery, McGill University Faculty of Medicine, Montreal, has been elected president of the Royal College of Physicians and Surgeons of Canada.—Dr. Gregoire F. Amyot, recently professorial lecturer in preventive medicine and public health at the University of Minnesota Medical School, Minneapolis, has been appointed health officer of British Columbia and secretary to the provincial board of health. Dr. Amyot was for several years director of the North Vancouver health unit and later adviser on hospital services and assistant to the provincial health officer. He also served in 1938 on the field staff of the American Public Health Association in making surveys of state health administration.—Drs. William V. Cone and Colin K. Russel, Montreal, are to head a neurologic unit for overseas war duty, it is reported. The unit will comprise fourteen officers, twenty-one nurses and a full complement of technicians, with facilities for the care of 200 patients. Dr. Cone is to be in charge of neurosurgery and Dr. Russel of neurologic service, it was said.

FOREIGN

Meetings Postponed.—The sixth International Congress for Experimental Cytology, which was to have been held in Stockholm, Sweden, July 25 to August 1, has been postponed indefinitely.—The International Union Against Tuberculosis announces that the award of the Léon Bernard Memorial Prize has been postponed for two years because of the present situation.—The second International Congress of Eugenics has been postponed indefinitely, according to *Science*. Further information may be obtained from the secretary, Prof. George K. Constantinesco, National Zootechnical Institute, Strada Dr. Stracovici 63, Bucharest, Rumania.

Joliot-Curies Receive Barnard Medal.—Frederic Joliot and his wife, Mme. Irene Joliot-Curie, co-workers in the Radium Institute of Paris, recently received the 1940 Barnard Gold Medal for Meritorious Service to Science through the National Academy of Sciences of the United States. This medal was established by the late Frederick A. P. Barnard, president of Columbia University, New York, from 1864 to 1889, to be awarded every five years for a discovery in physical or astronomical science. The Joliot-Curies were honored for their discovery of artificial radioactivity. Mme. Joliot-Curie is the eldest daughter of Pierre Curie and Madame Marie Curie, discoverers of radium. Five years ago the couple received the Nobel Prize in chemistry for their work.

CORRECTIONS

Fluidrachms Instead of Fluidounces in Methyl Salicylate Ointment.—In Cecil's article in *THE JOURNAL*, April 13, on "The Therapy of Rheumatic Fever," the amount of methyl salicylate in prescription 1, page 1444, should read 10 fluidrachms instead of fluidounces.

Relief of Symptoms of Major Trigeminal Neuralgia (Tic Douloureux).—In the article by Borsook, Kremers and Wiggins in *THE JOURNAL*, April 13, the third paragraph of the summary, page 1423, should have read: "Of four patients with sphenopalatine neuralgia, two were markedly improved and two improved. Three patients with atypical facial neuralgia may have had some slight improvement; six were unimproved."

University of Buffalo School of Medicine.—In connection with the figures for the University of Buffalo School of Medicine, on pages 1637 and 1641 of the State Board Number of *THE JOURNAL*, April 27, and in particular the percentage failing state board examinations, attention is called to the fact that since 1937 the students of this school have been required to pass part I of the examination of the National Board of Medical Examiners. Many students voluntarily complete the examinations of the National Board and secure licensure on this basis instead of taking those given by the state licensing boards. The University of Buffalo reports that forty-five of the sixty-one students in the class of 1939 passed part II of the examinations of the National Board last year. Including this number in the group who were examined for licensure would materially change the percentage of failures shown in tables 2 and 4.

Foreign Letters

LONDON

(From Our Regular Correspondent)

FOREIGN LETTERS

April 6, 1940.

The Chemotherapy of Protozoal Infections

At the Royal Society of Tropical Medicine Prof. Warrington Yorke described recent work on the chemotherapy of protozoal infections. These arose as a direct development of investigations on the metabolism of trypanosomes. It was first shown that Trypanosoma lewisi survived longer in citrated blood at 17 C. if dextrose was added; later that dextrose was essential for maintaining pathogenic trypanosomes alive in the agonal and that enormous amounts were consumed in their metabolism. Experimentally infected animals had hypoglycemia in the agonal or preagonal stage. In 1935 it was found that the changes in trypanosomes produced by germanin were similar to those produced in vitro by removing sugar from the nutrient medium, and it was concluded that this drug acted by interfering with the carbohydrate metabolism. This led to examination of the action of the hypoglycemia-producing guanidine derivatives, especially synthalin, had a definite therapeutic action on mice infected with Trypanosoma brucei. A number of these derivatives, especially synthalin, had a definite therapeutic action on mice infected with Trypanosoma brucei. It was first thought that synthalin acted by maintaining hypoglycemia and it was found to have a direct trypanocidal action in rats infected with Trypanosoma brucei. But Yorke and Louric found that the drug had a direct trypanocidal action in doses which damaged the liver, arsenicals and that in normal animals it did not produce pronounced hypoglycemia unless in doses which damaged the liver. This discovery opened a wide field of investigation, especially as to the chemical constitution of synthalin, which consisted of two guanidine groups connected by an alkylene chain and was essentially different from all known trypanocides. This led to preparing a large number of compounds for testing their trypanocidal effect. It was found that certain diamidino-undecaine cured almost 100 per cent of mice and rabbits experimentally infected with Trypanosoma rhodesiense. The structural feature of all the compounds examined was a central inert carbon chain with terminal strongly basic polar groups. It seemed that this carbon group might merely serve as a carrier of active groupings and guanidine compounds were aromatic structure of approximately the same molecular weight. A number of aromatic amidine and guanidine compounds were therefore prepared and several were found to be trypanocidal. Among these diamidinostilbene cured the great majority of mice infected with Trypanosoma rhodesiense. Its therapeutic index (ratio of maximum tolerated dose to minimum curative dose) was about 30. These compounds compared favorably with the aromatic arsenicals.

Preliminary reports of clinical trials in human trypanosomiasis in several centers in Africa showed rapid improvement with disappearance of trypanosomes from the blood and glands. To date these aromatic diamidines had been administered intravenously in a dosage of from 0.5 to 1 mg. per kilogram of body weight and from 1 to 2 mg. by the intramuscular route. No serious accidents had been reported, but it was too early to say whether these brilliant researches had produced remedies of practical value in the treatment of man infected with Trypanosoma or Leishmania.

Annual Report of Radium Commission

The Radium Commission declares in its annual report that two conditions prevent the treatment of cancer from exercising its full effect: the large majority of patients receive treatment at too late a stage and a considerable proportion do not receive the treatment best suited to them. The commission therefore

welcomes the cancer act of 1939, which increases the facilities for radium treatment. In earlier reports the commission emphasized the need for limiting the more specialized forms of treatment to a few hospitals. It is difficult to get radiotherapy of a consistently high standard outside large centers, well equipped and well staffed. Smaller hospitals can undertake it satisfactorily only by combining to make large units or by close association with a large center. Whatever the size of the center there is danger that patients may not get the best treatment unless there is active cooperation between the various departments concerned. To this end arrangements should be made for all cancer patients to be seen in consultation by a radiotherapist and a surgeon or specialist surgeon, and it is a great advantage if a pathologist can also take part in the consultation. The same three consultants should be available for the follow-up clinic.

There has been a considerable decrease in the use of radon. The circumstances under which radon is used are frequently unsatisfactory and it should be used only in approved centers. The commission fears that radon is frequently used by those ill fitted to do so.

DECREASE IN THE USE OF RADON

THE STORAGE OF RADIUM IN WAR TIME

During the year a conference, attended by the British X-Ray and Radium Protective Committee, King Edward's Hospital Fund for London, the Ministry of Health, the National Radium Commission and the Research Department, was held to consider what steps should be taken to prevent the dangers of dispersal of radium by high explosive bombs. The conference recommended that on the outbreak of war all the radium in the country should be placed at the bottom of 50 foot shafts and there remain until such time as it had been ascertained under what conditions radium therapy could be safely carried on during the war. Four bore holes have been provided to arrange for about twenty additional bore holes to be provided throughout the country. All holders of radium have been invited to communicate with the commission, and those who have accepted have been informed where the nearest safe deposit is situated.

Fatal Administration of Carbon Dioxide Instead of Nitrous Oxide

Two deaths in the Royal Naval Hospital, Haslar, were due to an unusual accident. A sick bay attendant and an able seaman who were undergoing operations died on the table. It was subsequently discovered that some one, whose identity was never discovered, had placed a cylinder of carbon dioxide in place in the machine which should have been occupied by the cylinder of nitrous oxide. At the inquest one of the anesthetists said that in civilian hospitals carbon dioxide cylinders were painted green. Since last June he had ordered the cylinders in the Haslar Hospital to be so painted. The cylinder which caused the deaths had once been green but had been painted over and there was nothing to indicate that it contained carbon dioxide. No such accident had previously occurred in the hospital, though the machine was in almost daily use. The machine was examined before administering the gas to the two men and was found to be in proper order. After the second death it was examined again and the cylinder valve was found to be marked "C. O." The cylinders were filled at the Portsmouth dockyard, and were kept separate from each other and in their proper colors at the hospital. The *British Medical Journal* suggests that the cylinders should be distinguished by some more permanent mark than paint, such as a device cast in the metal.

Health Officers Work in Wartime

At a luncheon of the Society of Medical Officers of Health, Mr. Elliot, the minister of health, said that new and tremendous tasks daily confronted all doctors and none more than

health officers. Even in this titanic struggle they would be able to hold the health ground gained since the last war and go forward to its completion. Their new responsibilities were tremendous. They had the supervision of more than 3,000 first aid posts with a personnel of 120,000, mostly unpaid. The ambulance service had 19,000 vehicles and 82,000 personnel. There were 133,000 beds ready for military or civilian casualties. New hospital building was going ahead faster than ever before. No fewer than 40,000 beds were being added to our hospital resources. These were nearly all constructed, or being constructed, and a further program was actively under way.

BUCHAREST

(From Our Regular Correspondent)

April 2, 1940.

Campaign Against the Rise in Price of Drugs

The great rise in the prices of drugs, and even the disappearance of such staple drugs as iodine and quinine, is not justified, and so the ministry of public health intervened and instructed the National Trade Union of Pharmacists to fix uniform prices. The price of potassium iodide, which was 500 lei (\$2.50) a kilogram prior to the war, now is 2,750 lei (\$13.35). The price of petrolatum and liquid petrolatum has increased 100 per cent, of quinine 150 per cent and of cod liver oil 300 per cent. Since the control has been taken over by the ministry of public health, the purchase price has been established by the control office, which gets the data from the custom house and from the national bank, which provides the importers with foreign currency. The retail chemist is allowed to add 30 per cent to cover profit, rent, taxes and personnel. The allowed addition to the cost of dressing materials and bandages is only 20 per cent. Dispensing chemists must place the calculation of the price on the margin of the prescription so that the purchaser clearly sees how much is reckoned for the bottle, for the drug and for dispensing. Trespassers are punished severely.

The Title of "Specialist"

M. Marinescu, minister of public health and public welfare, has elaborated a change in the public health law, a paragraph of which refers to the use of the title "specialist." Special practice can be pursued only by physicians who can documentarily prove that they obtained their special training in special clinics, in special state institutes or in state laboratories. Three years' special practice is prescribed by the law for operative surgeons, two years for gynecologists, obstetricians, ophthalmologists, otorhinolaryngologists, neurologists, venereologists, dermatologists, internists and radiologists. One year of special training is required for forensic doctors and balneologists. Before acquiring the "specialist" title the candidate has to pass an examination, after having spent the prescribed training years, before special boards. Exempt from these examinations are the senior physicians of state institutes and the assistants and adjuncts of university clinics.

The Regulation of Cosmeticians

A law has been announced in the official gazette which regulates the practice of cosmeticians. The title "cosmetician" is conferred only by the ministry of public health after a special examination which consists of (1) a written thesis on the difference between cosmetic disorders of the skin and pathologic blemishes, (2) a verbal examination on the anatomy and physiology of the skin, (3) general hygiene, disinfection, infectious diseases, the hygiene of the skin and nails, personal hygiene and the hygiene of workshops, and (4) a practical examination in chemistry relative to cosmetic ointments, lotions, the recognition of apparatus used in cosmetics (ultraviolet

lamps, diathermy, galvanization) and facial massage. Examinations are held annually. The examination fee is 2,000 lei (\$10).

The candidates must answer questions about cleanliness of the hair and nails, prevention of contagious hair diseases, water and soap, the importance of cold and warm water, baths and the use of medicated soaps, the composition, advantages, disadvantages and preparation of face powders, the action of creams on the skin, together with their advantages and disadvantages, facial massage and accidents likely to occur in cosmetic practice. In order to teach all this the ministry of health ordered all faculties of medicine in Rumanian universities to arrange six months' courses besides work in the dermatologic clinics and wards.

BUENOS AIRES

(From Our Regular Correspondent)

March 29, 1940.

Infant Mortality in Buenos Aires

The federal public health service recently published two reports on mortality statistics, with numerous tables and curves, prepared by Dr. Adela Zauchinger, covering the years 1911-1936. According to the first of these reports, infant mortality was always lower in the capital than in the provinces. This is in accord with the experiences of other countries and is due to the fact that social measures originate in large cities. Infant mortality curves largely parallel those of the general population but gradually decrease. On the other hand, the birth rate curves show an abrupt fall, seriously endangering the surplus of births over deaths. In 1911 Buenos Aires had a population of 1,360,000 and recorded 47,820 births; in 1936 it had 2,400,000 and recorded only 38,890 births. The birth rate per thousand stood at 35.1 in 1911 and fell to 16.6 in 1936, whereas infant mortality up to 1 year fell from 104.8 per thousand in 1911 to 56.3 in 1936. The mortality for children between 0 and 15 years is now lower than the infant mortality (0 to 1 year) for 1911. Only the mortality rate for the first seven days of infant life did not decrease, but it is one and one half times higher than, for example, in 1918. Congenital injuries, such as defective vitality, premature birth, malformations and athrepsia, seem to have much to do with the situation, increasing from 7.3 per thousand in 1927 to 10.7 per thousand in 1935. Deaths from these causes predominate even at the age level of from 7 to 30 days. Other causes of death progressively come into the picture, especially intestinal diseases, which, together with those of respiration, predominate up to 1 year, varying in their predominance as the years pass. Deaths from respiratory disorders increase whenever certain infectious diseases, such as measles, whooping cough and influenza, are in the ascendancy. Statistical accuracy may be blurred, however, by the fact that deaths may be attributed to pneumonia rather than to their real cause. Infant welfare work, policlinics and other health centers have contributed a great deal to the improved conditions. For example, gastrointestinal diseases formerly accounted for more than 40 per cent of deaths during the first year of life (in 1911, 41.3 per cent) and for 22 per cent during the second year. In 1936 the computations showed a fall to 25 per cent for the first year of life and to 19 per cent for the second year of life.

The four most fatal infectious diseases were measles, scarlet fever, whooping cough and diphtheria, which pass through a four year cycle of intensity, the greatest fluctuations existing in severe whooping cough, which naturally affects the index of computations. Whooping cough in the epidemic form is not so serious in the capital as in the provinces. A recent epidemic in the region of the Cordilleras was so formidable that deaths exceeded births. After the second year, as is well known, deaths from infectious diseases increase with tuberculosis as an additional disease factor, especially from the tenth to the fifteenth

MARRIAGES

car, in its meningeal and pulmonary forms, five times more girls dying than boys. Deaths from external causes during the first two years are principally due to burns. In the fifth to the tenth year traffic accidents kill more boys than girls. In fact, deaths due to infectious and respiratory diseases. After deaths due to infectious and respiratory diseases.

The second report deals with the general mortality statistics for the population of the capital in 1937. In this investigation the laborious task was undertaken of eliminating those who had died in Buenos Aires but were not domiciled there and therefore did not belong to the city's population. This reduced the deaths from 27,381 to 24,492, 10.1 per thousand. (The birth rate for 1937, computed in the same way, was 14.2 per thousand.) Male mortality was higher than female, as reflected in 11.5 per thousand against 8.7 per thousand. The ratio remains the same, if natives and foreigners are counted separately:

	Men	Women	Total of Men and Women
Argentines (per thousand).....	8.4	6.4	7.4
Foreigners (per thousand).....	15.8	13.3	14.7

However, the difference in age level must be taken into consideration. Argentinean children under the age of 15 years numbered 526,000, children of foreigners about 32,000. If mortality is computed from the 25th year upward, the difference between the two groups is greatly reduced. If individual ages are considered, total results are partly modified.

Female mortality of the Argentineans up to 14 years is lower than male mortality, likewise between the 16th and 18th year. From the 20th year the death rate of men exceeds that of women by one half and one third; after the 25th year, female mortality rate is higher. The greater mortality of men accounts for the preponderance of women in the whole population. The mortality rate of foreigners after the 25th year is lower than that of Argentineans. More Argentine men die from infections and parasitic diseases, exclusive of scarlet fever, whooping cough, influenza and septicemia. The latter are the preponderating causes of female deaths together with rheumatism, diabetes, hepatitis, peritonitis and old age diseases. More men than women die from violent causes of all kinds with the exception of burns. Poison is the chief instrument of suicide, fire arms the second.

Control of Poisoning in Buenos Aires

For some time a movement has been under way to reduce, in a systematic way, deaths from poisoning, both suicidal and accidental. The idea originated with Dr. Atilio R. Maggiolo, of the Hospital Teodoro Alvarez, who tabulated the poisons commonly used and constructed a cabinet containing the necessary antidotes and apparatus. The whole plan has now been adopted by the Asistencia Pública on the initiative of Dr. José W. Tobias, its director, and introduced into all hospitals served by this agency. A chart designating the poisons and their antidotes is part of the chest and enables prompt identification of the poison and its medication. The plan has been placed at the disposal, without charge, of the remaining Argentine provinces and territories, of practicing physicians and of foreign countries requesting the information.

Compulsory Inoculation of Children

According to a new regulation, all obstetric divisions in the hospitals of Buenos Aires must henceforth instill a solution of from 1 to 2 per cent of silver nitrate into the eyes of the newborn (Credé's method) unless there is medical contraindication. Likewise, all children between the age of 1 and 10 years treated

in the hospitals of the city must undergo antidiphtheria inoculation, unless the procedure is contraindicated. There is no charge for the vaccination.

Hospital for Prisoners

In Buenos Aires a new hospital has been erected for the hospitalization and centralized treatment of inmates of the various penal institutes, heretofore treated in hospitals and clinics. However, inmates with infectious diseases are not accepted for treatment. The new hospital contains two divisions, a division for men with seventy-two beds and six wards and a division for women with two wards.

Insulin and Shock Therapy in Schizophrenia

The society for neurology and psychiatry, a division of the Asociación Médica Argentina, recently devoted a special session to insulin and shock therapies in schizophrenia. Clinical and especially statistical information was supplied by the large psychiatric clinics of Buenos Aires. Prof. Gonzalo Bosch, Professor Montanaro, Dr. Pichón Riviere and Dr. Peluffo discussed shock therapy by means of electricity or by ammonium chloride. Drs. Martinez Dalke and Pedace discussed pulmonary complications in shock therapy.

Pan-American Congress on Tuberculosis

The fifth Pan-American Congress on tuberculosis will be held October 13-17 in Buenos Aires and Córdoba. Papers to be presented may be submitted until July 1 and titles of contributions to these subjects until September 1. The official subjects announced are Index of Tubercularization in South American Countries and Heredity and Infection in Tuberculosis. The committee has offered some suggestions on the first subject to permit the preparation of uniform questionnaires in all South American countries regarding the index of tubercularization.

Personals

Mariano Alurralde, professor of neurology in Buenos Aires, has retired on reaching the retiring age. The opening lecture in the postgraduate course on psychoanalysis, recently organized by the society for psychoanalysis, was given by Prof. Juan Ramón Beltrán in January. Attendance on the part of physicians exceeded all expectations. Dr. Alberto Baraldi, professor of the faculty of medicine of Rosario, the second largest city of Argentina, numbering more than 500,000 inhabitants, was appointed manager of that city.

Marriages

MORGAN BURGESS RAIFORD, Franklin, Va., to Miss Beulah Mason Daves of Goochland County, March 16.
BERTRUM I. FIRESTONE, Columbus, Ohio, to Miss Frances Allene Rosenblum of Youngstown, March 24.
JACK JOSEPH ALION to Miss Evelyn Edythe Baker, both of Columbia, S. C., in Greenville, April 13.
WILLIAM FRANCIS MURPHY, Scituate, Mass., to Miss Mary Holmes Pulley in Boston, March 30.
ARTHUR J. FREEDMAN, Baltimore, to Miss Rose Loveman Mills of Nashville, Tenn., April 22.
WILLIAM PARKER TERRY, to Miss Selma Kroudvird of Mahone of Richmond, February 24.
CHARLES PELTZ, Mass., January 28.
JAMES COLEGATE RUDD to Miss Flora Mac Johnson, both of Greensboro, N. C., in April.
SECONDO RAYMOND CAFARO to Miss Eloise Fisher, both of Youngstown, Ohio, March 23.
ROBERT M. GOLDBSTEIN, Chicago, to Miss Eileen Mandl of Tuckahoe, N. Y., March 27.

Deaths

Austen Fox Riggs ⊕ Stockbridge, Mass.; Columbia University College of Physicians and Surgeons, New York, 1902; clinical professor of neurology at his alma mater and assistant instructor of pathology from 1904 to 1907; fellow of the American College of Physicians; member of the American Psychiatric Association, member and director of the Massachusetts Society for Mental Hygiene, member of the board of directors of the National Committee for Mental Hygiene from 1923 to 1936; secretary of the Thomas W. Salmon Memorial, Inc., from 1929 to 1936; member of the medical committee of the Judge Baker Foundation, Boston, from 1930 to 1936; member of the Council of the American Foundation for Mental Hygiene from 1930 to 1936; member of the Committee on Organization of the International Committee for Mental Hygiene in 1931 and member of the Council from 1932 to 1936; served during the World War; in 1921 was decorated with the Serbian Order of Cross of Mercy; formerly bank president; founder, president and medical director of the Austen Riggs Foundation since 1919; consulting psychiatrist to the Sharon (Conn.) Hospital, House of Mercy Hospital, Pittsfield, Mass., Vassar College, Poughkeepsie, N. Y., Indian Mountain School, Lakeville, Conn., and Williams College, Williamstown, Mass.; member of the board of directors of Blythewood, Greenwich, Conn., from 1934 to 1936; author of "Intelligent Living" published in 1929; aged 63; died, March 5.

William Gibson Spiller ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1892; assistant clinical professor of nervous diseases and assistant professor of neuropathology at his alma mater from 1901 to 1903, professor of neuropathology and associate professor of neurology from 1903 to 1915, professor from 1915 to 1932 and since 1932 emeritus professor of neurology; emeritus professor of neurology at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; clinical professor of neurology at the Woman's Medical College of Pennsylvania from 1902 to 1925; member and past president of the American Neurological Association and the Philadelphia Neurological Society; member of the American Association of Neuropathologists; corresponding member of the Gesellschaft deutscher Nervenärzte, Société de Neurologie de Paris, Verein für Psychiatrie und Neurologie, Vienna, and honorary member of the Société Estienne de Neurologie; honorary consultant in neurology, Philadelphia General Hospital; in 1934 received the honorary degree of doctor of science from the University of Pennsylvania and doctor of laws from Lafayette College; aged 76; died, March 18.

Thomas Drysdale Buchanan ⊕ New York; New York Homeopathic Medical College and Hospital, New York, 1897; president of the American Board of Anesthesiology, Inc.; past president of the American Anesthesia Society; fellow of the American Society of Anesthetists; clinical professor of anesthesiology at his alma mater, now called New York Medical College, Flower and Fifth Avenue Hospitals, professor of anesthesia from 1903 to 1914 and attending anesthetist and lecturer of anesthesia from 1900 to 1903; professor of clinical surgery (anesthesiology), New York Post-Graduate Medical School, Columbia University; during the World War was commissioned a captain in the medical reserve corps; associate attending anesthetist to the Flower and Fifth Avenue Hospitals; attending anesthetist to the Presbyterian Hospital and New York Post-Graduate Hospital; consulting anesthetist to the Fitkin Memorial Hospital, Neptune, N. J., Metropolitan Hospital, the Reconstruction Hospital and Department of Correction; aged 64; died, March 21, of coronary occlusion.

William Oscar Sweek ⊕ Phoenix, Ariz.; St. Louis University School of Medicine, 1912; member of the House of Delegates of the American Medical Association in 1918 and at a special session in 1935; fellow of the American College of Surgeons; formerly secretary of the board of medical examiners; associate professor of pathology and bacteriology at Loyola University School of Medicine, Chicago, 1913-1914; served during the World War; member of the board of regents of the University of Arizona from 1932 to 1937; chief of the surgical section, Lois Grunow Memorial Clinic; on the staff of St. Joseph's Hospital; aged 54; died, March 3, of cerebral hemorrhage.

George Charles McElfatrick ⊕ Wilmington, Del.; Baltimore Medical College, 1910; past president of the Medical Society of Delaware; member of the Radiological Society of North America and the American College of Radiology; on the

staffs of the Delaware State Hospital, Farnhurst, and the Delaware Hospital; aged 59; died, March 20, of acute coronary thrombosis.

Walter H. MacCraken, Detroit; University of Louisville (Ky.) Medical Department, 1903; member of the Michigan State Medical Society; emeritus dean and professor of pharmacology and therapeutics at the Wayne University College of Medicine; fellow of the American College of Physicians; aged 69; died, March 3, of cerebral hemorrhage and arteriosclerosis.

Mary King Robbie, San Antonio, Texas; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1904; for many years member of the school board; formerly instructor of hygiene at Our Lady of the Lake College; on the courtesy staff of the Santa Rosa Hospital; aged 60; died, March 6, of heart disease and hypertension.

Reason T. Layman ⊕ Elizabethtown, Ky.; University of Louisville (Ky.) Medical Department, 1910; past president and secretary of the Hardin County Medical Society; chairman of the board of trustees of the city schools; aged 66; died, March 27, in St. Anthony's Hospital, Louisville, following an operation for abscess of the gallbladder.

Heine Marks, St. Louis; Cincinnati College of Medicine and Surgery, 1878; member of the Missouri State Medical Association; formerly member of the city council and of the state legislature; at one time superintendent of the City Hospital; aged 80; died, March 15, of influenza and chronic myocarditis.

John Edward McArdle ⊕ Fort Wayne, Ind.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1907; medical examiner for the city parochial schools; formerly county coroner; past president of the staff of St. Joseph's Hospital; aged 55; died, March 17, of cerebral hemorrhage.

Charles Edmund Laughlin ⊕ Evansville, Ind.; Miami Medical College, Cincinnati, 1878; an Affiliate Fellow of the American Medical Association; member of the American Psychiatric Association; for many years superintendent of the Evansville State Hospital; aged 84; died, March 30, of diabetes mellitus.

John Davis Watterson, Kalida, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; member of the Ohio State Medical Association; served during the World War; aged 77; died, March 26, in the Memorial Hospital, Lima, of angina pectoris and bronchopneumonia.

Andrew Sutton Newell ⊕ Converse, Ind.; University of Louisville (Ky.) Medical Department, 1911; served during the World War; for many years county coroner; at one time secretary-treasurer of the school board; aged 60; died, March 15, in the Marion (Ind.) General Hospital of heart disease.

David Lee Hirschler ⊕ Norfolk, Va.; University of Virginia Department of Medicine, Charlottesville, 1901; member of the American Urological Association; past president of the Norfolk County Medical Society; on the staff of the Norfolk General Hospital; aged 59; died, March 22, of coronary occlusion.

Joseph Edwin McDonald, Kerrville, Texas; University of Texas School of Medicine, Galveston, 1917; member of the State Medical Association of Texas; health officer; served during the World War; aged 46; died, March 8, in the Santa Rosa Hospital, San Antonio, of coronary thrombosis.

Fred Aswell Turner, Waco, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1924; member of the State Medical Association of Texas; on the staffs of the Providence and the Hillcrest Memorial hospitals; aged 41; died, March 29, of acute nephritis and peritonitis.

Victor Alfred Neujean, New York; Université de Liège Faculté de Médecine, Belgium, 1902; acting assistant surgeon, U. S. Public Health Service; on the staff of the U. S. Marine Hospital as specialist in pathology and bacteriology; aged 61; died, March 21, of pulmonary tuberculosis.

George Hanlon Day, Sarasota, Fla.; Kentucky University Medical Department, Louisville, 1902; member of the Florida Medical Association and the American Urological Association; veteran of the Spanish-American and World wars; aged 61; died, March 26, of cerebral hemorrhage.

John R. Gray, Orlando, Fla.; University of Buffalo School of Medicine, 1889; member of the Medical Society of the State of New York; at one time professor of pharmacognosy and secretary to the faculty, department of pharmacy, University of Buffalo; aged 80; died, March 28.

DEATHS

1947

- Edward Ames @ Kalamazoo, Mich.; Yale University School of Medicine, New Haven, 1874; University of the City of New York Medical Department, 1881; member of the Michigan State Medical Society; aged 89; died, March 22, in Coconut Grove, Fla., of coronary embolism.
- Adolph Bernard Oyen @ Chicago; Detroit College of Medicine, 1890; an Affiliate Fellow of the American Medical Association; on the staffs of the Lutheran Deaconess Hospital and the Norwegian American Hospital; aged 82; died, March 24, of cerebral hemorrhage.
- Dunham O. Munson, Pittsburg, Kan.; Marion-Sims College of Medicine, St. Louis, 1896; past president and secretary of the Crawford County Medical Society; formerly on the staff of the Mount Carmel Hospital; aged 80; died, March 31, of acute cardiac dilatation.
- Bailey Brown Sory, Cedar Hill, Tenn.; Vanderbilt University School of Medicine, Nashville, 1893; member of the Tennessee State Medical Association; president of the Robertson County Medical Society; aged 68; was found dead, March 7, of coronary occlusion.
- W. Bert Siders @ Warsaw, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; past president of the Kosciusko County Medical Society; aged 64; died, March 16, of carcinoma of the sigmoid.
- Robert Spicer McDavid, Memphis, Tenn.; Loyola University School of Medicine, Chicago, 1918; member of the Tennessee State Medical Association; on the staff of St. Joseph's Hospital; aged 47; died, March 25, of malignant hypertension.
- James Grant Shirer, Newark, Ohio; Starling Medical College, Columbus, 1896; member of the Ohio State Medical Association; aged 67; died, March 30, of injuries received when he was struck by an automobile as he was crossing the street.
- Frank Anderson Votey @ Grand Rapids, Mich.; College of Physicians and Surgeons, Childersburg, Ala.; Memphis College, New York, 1887; aged 77; died, March 25, Butterworth Hospital of cerebral embolism.
- Madison Jasper Pruet, Childersburg, Ala.; Memphis (Tenn.) Hospital Medical College, 1896; aged 71; died, March 25, Association of the State of Alabama; aged 71; died, March 25, in a hospital at Birmingham of pneumonia.
- Thomas Emmet Shea, Philadelphia; Jefferson Medical College, Philadelphia, 1905; demonstrator of neuro-anatomy at his alma mater; formerly member of the state legislature; aged 61; died, January 30, of coronary occlusion.
- George Ludwig Alt @ Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; served during the World War; aged 58; died, March 25, of coronary thrombosis.
- Dwight W. Dickinson, Glendale, Calif.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1884; aged 80; died, January 29, in Los Angeles of coronary thrombosis and arteriosclerosis.
- Arthur Francis Hoag @ Millerton, N. Y.; College of Physicians and Surgeons, Carbondale, Pa.; College of Medicine, New York, 1879; health officer; aged 83; died, February 18, of arteriosclerosis.
- William Francis Dixon, Baltimore, Md.; College of Physicians and Surgeons, Glendale, Calif.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1884; aged 80; died, January 29, in Los Angeles of coronary thrombosis and arteriosclerosis.
- Hawkins H. Hampton, Colbert, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1892; for many years member of the board of education; aged 72; died, March 20, of heart disease.
- Frank Walter Dannecker @ Van Wert, Ohio; Eclectic Medical College, Cincinnati, 1920; formerly city health officer; aged 46; died, March 20, in a hospital at Louisville, Ky., of heart disease.
- Olive Kennett McAdams, Lexington, Ky.; University of Michigan Medical School, Ann Arbor, 1923; served during the World War; aged 43; died, February 10, of coronary occlusion.
- Otto James Owens, Youngstown, Ohio; Starling Medical College, Columbus, 1900; veteran of the Spanish-American and World wars; aged 64; died, March 14, in St. Elizabeth's Hospital.
- Sidney Edward Pincus, Memphis Tenn.; Memphis (Tenn.) Hospital Medical College, 1896; member of the Tennessee State Medical Association; aged 69; died, March 27, of myocarditis.
- Rush Robinson @ Columbus, Ohio; Ohio Medical University, Columbus, 1905; for many years on the staff of the White Cross Hospital; aged 62; died, March 17, of myocarditis.
- Alexander Valentine Hunter, Crystal Springs, Miss.; Vanderbilt University School of Medicine, Nashville, 1892; aged 72; died, March 24, of carcinoma of the pancreas.
- George Trotter Tyler, New York; Medico-Chirurgical College of Philadelphia, 1901; veteran of the Spanish American War; aged 66; died, March 15, in Paris, France.
- Oliver C. Teagle, Campiti, La.; Memphis (Tenn.) Hospital Medical College, 1902; member of the Louisiana State Medical Society; aged 71; died, March 9, of pneumonia.
- William L. Harper, Junction City, Ark.; Louisville (Ky.) Medical College, 1894; member of the Arkansas Medical Society; aged 65; died, March 22, of carcinoma.
- Solomon S. Lee, Lowell, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1898; aged 68; died, March 21, of carcinoma of the ileum.
- Franklin Fisher, Corner Brook, Newfoundland; McGill University Faculty of Medicine, Montreal, Que., 1904; aged 64; died, February 3, at Clearwater, Fla.
- George Henry Palmer, San Francisco; Homeopathic Medical College of the State of New York, 1865; aged 95; died, February 2, of hypertensive heart disease.
- Luther H. Montgomery, Trenton, Tenn.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1906; aged 62; died, March 16, of coronary occlusion.
- Vance M. Powell, Peoria, Ill.; Louisville (Ky.) Medical College, 1894; aged 73; died, March 28, in St. Francis Hospital of carcinoma of the ileum.
- Charles Edwin Waters, Murrayville, Ill.; St. Louis College of Physicians and Surgeons, 1908; aged 67; died, March 23, when he was struck by a train.
- Julia Frances Trout, Lancaster, Ohio; Woman's Medical College of Pennsylvania, Philadelphia, 1893; aged 83; died, March 25, of arteriosclerosis.
- Thomas Achilles Dicks @ Broadlands, Ill.; University Medical College of Kansas City, Mo., 1892; aged 73; died, March 28, of heart disease.
- George P. Thomas, Philadelphia; Jefferson Medical College of Philadelphia, 1888; aged 77; died, January 7, of arteriosclerosis and myocarditis.
- David George Azadian, Los Angeles; Tufts College Medical School, Boston, 1909; aged 54; died, February 8, of coronary arteriosclerosis.
- Arthur Elmer Tuck, Philadelphia; Boston University School of Medicine, 1878; aged 86; died, February 12, of chronic myocarditis.
- Homer Graham Duncan, Braddock, Pa.; Jefferson Medical College of Philadelphia, 1895; aged 68; died, February 10, of chronic myocarditis.
- Edwin Webster Thornton, Piggott, Ark.; Kentucky School of Medicine, Louisville, 1893; aged 79; died, March 1, of arteriosclerosis.
- Daniel Roberts Brower, Mercedes, Texas; Rush Medical College, Chicago, 1902; aged 65; died, March 12, of cerebral arteriosclerosis.
- Edward Arthur Murdock, Spencer, Mass.; Boston University School of Medicine, 1878; aged 85; died, February 8, of arteriosclerosis.
- Robert H. Strickland, Clifton, Tenn.; Memphis Hospital Medical College, 1891; aged 81; died, February 4, of cardiac renal disease.
- Alvan L. Waltz, Cleveland; Homeopathic Hospital College, Cleveland, 1883; aged 81; died, March 22, of nasal hemorrhage.
- Pinta Prichard, Shawmut, Ala.; Kentucky School of Medicine, Louisville, 1893; aged 77; died, March 1, of carcinoma of the lung.
- William S. Fall, Henderson, Texas; Louisville (Ky.) Medical College, 1880; aged 90; died, March 18, of arteriosclerosis.
- J. D. Terry, Burkeville, Va.; Medical College of Virginia, Richmond, 1905; aged 66; died, February 17, of pneumonia.
- George Conkle Shannon @ Baltimore; Baltimore Medical College, 1883; aged 75; died, February 13, of pneumonia.
- Dan MacDougall, Winnipeg, Man., Canada; Manitoba Medical College, Winnipeg, 1917; died, Dec. 22, 1939.
- James Kelley Brammer, Cincinnati (licensed in Ohio in 1896); aged 88; died, March 2, of myocarditis.

Bureau of Investigation



A. G. GOODMAN'S MAIL ORDER FRAUDS

Kelp-Tone, Robert Holmes and Richard Blackstone Fakes Are Debarred from the Mails

Albert G. Goodman of Jersey City, N. J., and New York has been a medical mail order quack for some years. As long ago as 1927 he was advertising under the name "Richard Blackstone," as will be detailed later in this article. He was quackling it under the trade style "American Laboratories" in 1929 and has conducted other medical mail order frauds under such

"BASHFUL"

"Shame on you!" Are you nervous, embarrassed or ill at ease? Stop being shy of strangers. Conquer the terrible fear of your superiors. Be cheerful and confident of your future! Your faults easily overcome so you can enjoy life to the fullest. Send 25 cents for this amazing book. **RICHARD BLACKSTONE,** B-472 Flatiron Bldg., New York City



NERVES?

Are You Always Raced? Fatigued? Worried?
Oily? Pessimistic? Constipation, indigestion, cold
sweats, dizzy spells and weakness are caused by
NERVE EXHAUSTION. Drugs, tonics and medicines cannot help you,
sick nerves! Learn how to regain Vigor, Calmness and Self Confidence.
Send 25c for this amazing book.

RICHARD BLACKSTONE, N-221 Flatiron Building, N. Y. C.

Two typical "Blackstone" advertisements.

names as "Robert Holmes," "Kelp-Tone Company," "Everett H. Singer," "S. J. Scheen" and possibly others.

The Post Office Department through its fraud order division proceeded against Goodman in 1931 when he was doing business under the names of Blackstone, American Laboratories, Singer, Scheen, and so on. At that time Goodman, to forestall the issuance of a fraud order, made an affidavit that he would go out of the business he was then engaged in and never resume it. His oath proved to be as worthless as his business was fraudulent. At that time he was selling a nostrum called "Nervor" for "Nervous Exhaustion." In 1936-1937 the Federal Trade Commission ordered Goodman—as Robert Holmes—to cease doing the fraudulent business that he had sworn to abandon—but of course he didn't. He apparently took the attitude—not unnaturally—that, so long as there was no danger of being fined or imprisoned, why pay any attention to federal authorities?

Finally in 1939 the Post Office Department again interested itself in Goodman's fraudulent mail order activities, which at that time comprised the Kelp-Tone swindle, and in June 1939 a fraud order was issued against the names Kelp-Tone Company, A. G. Goodman, Robert Holmes and Richard Blackstone.

According to Goodman his "patent medicine" Kelp-Tone would completely and permanently overcome any case of:

Constipation
Common Cold
Anemia
Dyspepsia
Weakness
Rickets

Malnutrition
Sciatica
Goiter
Headache
Asthma
Fatigue

Neurasthenia
Underweight
"Lowered Vitality"
"Nervous Disorder"
Arthritis
Gout

—and a number of other conditions. For example, it would also cure “disturbance of the reproductive organs”; also it was a sovereign remedy for “female disorders,” “bladder affections,” “kidney disorders,” subnormal growth, high blood pressure, bone diseases, tooth decay and “nail brittleness.” In fact, one might assume from reading Goodman’s advertising that the only things Kelp-Tone was not specific for were soft corns and hardening of the arteries.

Kelp-Tone was claimed to be dried and powdered kelp (seaweed) compressed into tablets. Analysis showed them to con-

tain about $\frac{1}{400}$ grain of iodine and small amounts of sulfur, phosphorus, sodium, potassium, chloride, iron, calcium, magnesium and other elements. The Kelp-Tone Company was conducted from 840 Broadway, New York. From the Flatiron Building, 175 Fifth Avenue, New York, Goodman had carried on his "Richard Blackstone" fraud, of which more later. From 246 Fifth Avenue he operated "The American Laboratories" and from the Fuller Building, Jersey City, N. J., he ran his "Robert Holmes" quackery. Goodman was a peripatetic and versatile faker.

In 1927, when the Richard Blackstone fake was in full swing, the then Director of the Bureau of Investigation of the American Medical Association, in order to obtain the "literature" and follow-up system of Goodman's fraud, sent 25 cents to the Blackstone concern for its booklet "New Nerves for Old." This proved to be, in effect, a "come-on" for a more elaborate swindle that sold for considerably more money. With the booklet came the first of many follow-up letters all urging the prospective victim to fill out a questionnaire and return it to "Blackstone"—who styled himself a "Nerve Specialist and Hygienist"—and a "Special Diagnosis" would be sent "absolutely free." Blackstone also claimed to be associated with a laboratory that had "a large number of skilled experts and chemists to make analyses and diagnoses."

In due time the follow-ups ceased but the name of the inquirer was evidently filed on Goodman's sucker list, for about two years later a mimeographed letter came, not from "Richard Blackstone," but from the "Nerve Culture Institute," also in the Flatiron Building, notifying the recipient that the "Institute" had ready for distribution its "new book entitled 'New Nerves for Old'."

While Goodman was advertising from 175 Fifth Avenue, New York, under the name of Richard Blackstone, that "I employ no drugs" and emphasizing that "Drugs Are Valueless," he was, under the trade style The American Laboratories at 246 Fifth Avenue, New York, selling a number of "patent medicines." These comprised "Nervor" for "nervous exhaustion," "Pileasa"

ANALYSIS REPORT

Robert Holmes

FULLER BUILDING
Jersey City, N. J.

NAME _____

REPORT NO. _____

(Please enclose this Report Number when writing me)

IMPORTANT: The Frachmeyer Report has been made after careful study and consideration. Please give the following data your close attention, as it pertains directly to you. The paragraphs marked ✓ show a slight abnormal condition; ✓✓ a high degree; ✓✓✓ a very marked degree.

- 1. THE INTERNAL NERVOUS SYSTEM.**

The Nervous System is composed of a vast, mysterious network of tissues. The External and the Internal (Sympathetic) Nervous Systems are the two main divisions. The latter is by far the more important, as it governs the action of nearly every vital organ. When there is weakness in the Internal Nervous System, it is shown by an impairment in the action of any of the functions of the body. Since the Internal Nervous System is closely connected with the mind, all moods and mental states directly affect the action of all vital organs. If you take no account, you will pay especial attention to the Internal Nervous System, weakness and misadjustments as they are among the greatest trouble-makers. By following the instructions of the Internal Nervous System, through my instructions, your nervous will be healed and calmed, and your Nervous Power increased.
- 2. NERVE STRAIN.**

Your nerves are overtaxed and are laboriously depicting your Nervous Power. This nerve fatigue means that your Nervous System is so weakened that you make mistakes as the Nervous System controls the action of every vital organ and every muscle and bone. It is, therefore, very important that you take the time to increase your efficiency. It is possible to break up your nerve tension by the proper instruction and mental suggestion.
- 3. SHOCKS TO THE NERVES.**

Severe nervous shocks cause great disturbance to Nervous Power and work the Nervous Organization. Right shocks are equally exhausting and dangerous, although their effects take longer to manifest themselves. My special instruction, mental suggestion and instructions on relaxation which will counteract the nerve-depleting effects of these shocks and
- 5. FEARS AND WORRIES**

Fears, such as fear of coming to death, of being stolen or arrested, fear of attacks of danger and trouble, loss of family, of spot income, etc., are caused by a paralysis or abnormality in the Nervous System. Extreme worry and mental depression must be counteracted and then subsequent overexhausting effects avoided.

✓✓✓ My personal study has brought to a correct and sane use of the nerves and in later, you the released use of the Nervous Power.
- 6. THE SOLAR PLEXUS.**

The action of all the vital organs is due to the heart, lungs, stomach, liver, intestines, etc. are directly governed by the Pancreatic-Gastric Nerve and the nerves of the Solar Plexus. All mental fatigue, some of the greatest we can effect the action of these organs, prevents us from being well.

✓✓ It is very easy to see that with the depletion and impairment of the Solar Plexus Nerve causes the action of the Pancreatic-Gastric Nerve. As you are especially a man of high intelligence, a mental depression of the Pancreatic-Gastric Nerve I would desire much attention to take a mental adjustment.
- 7. POISONS IN THE SYSTEM.**

When poison spread through the system, the mind releases the vital power and functions. This condition is called "Vital Poisoning." Almost every form of pain, important or distressing to the body and mind can be traced to the presence of poisons in the system. These poisons are extremely dangerous, and do not remove of readily, and you are not the part of the body, often being, nervous and subtle. It is that part of the body that is poisoning in your case is the nervous system, and it must be eliminated by the use of the cord,

An individual "analysis" by "Robert Holmes."

for piles, "Eczemesal" for eczema, "Stomesal" for "stomach trouble," "Rheumesal" for rheumatism and "Pimplesal" for pimples!

The Richard Blackstone fake was actually an attempt to sell a "Course of Instruction" for which Goodman asked \$10. Those who signed the "Enrollment Blank" and sent it with the necessary \$10 were asked to fill in a questionnaire. This, after

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calling for information as to age, weight, sex, height, etc., continued in part as follows:

Were you a nervous child? . . . Are you nervous now? . . . Your mother? . . .
Was, or is, your father high-strung and nervous? . . . Are you restless? . . .
Do you feel depressed? . . . Are you bashful? . . .
Irritable? . . . Have you any bad sex habits? . . .
Easily angered? . . . Is your hair falling out? . . .
Are your sex-powers weak? . . .
Have you dizzy spells? . . .
Do you fear insanity? . . .

While Goodman—as Richard Blackstone—stated that answering these and other questions would enable him to give better "personal and individual" service, he admitted to the Post Office Inspector who investigated the fraud that the questionnaires served no particular purpose, for when received by him they were merely filed! It developed also that the claim of "individual and personal" service was more fakery. The "courses" that the Richard Blackstone outfit sent out were the same whether they went to a young woman suffering from "bashfulness" or to an elderly roué who had admitted "bad sex habits."

Goodman's "Robert Holmes" swindle was carried on from the Fuller Building, Jersey City, N. J. It was essentially the same fake as the Richard Blackstone "Course of Instruction" except that instead of selling for \$10 it sold for \$50, later marked down to \$35.

The Goodman case emphasizes again that the issuance of fraud orders by the Post Office Department is not always effective against such individuals. Presumably, only imprisonment or heavy fines could deter Goodman and his ilk from continuing to swindle the sick.

Correspondence

IMPORTANCE OF INTENSIVE HOME FOLLOW-UP IN TUBERCULIN TESTING SCHOOL PROGRAMS

To the Editor:—I am sure that it will be gratifying to Dr. Robert E. Plunkett, general superintendent of tuberculosis hospitals, New York State Department of Health (THE JOURNAL, Dec. 23, 1939, p. 2288), to know that there is one health department that is using the tuberculin test in the home. I agree that the use of tuberculin in school surveys and subsequent roentgenography of the reactors without a survey in the homes of the Mantoux positive children is extremely wasteful. I do believe that the data given herewith show that, combined with a careful systematized follow-up system, more valuable clues are revealed which in rural districts are impossible to obtain otherwise. While the importance of industrial surveys cannot be minimized, there is some danger of health officers throughout the country misinterpreting Dr. Plunkett's remarks in relation to tuberculin testing in the schools. It must be clearly understood that in rural areas particularly there are generally no large industrial plants where the work that Dr. Plunkett has so well illustrated can be carried out.

In the Los Angeles County Health Department it became apparent that some additional specialized effort must be made to follow up the families among the Mantoux positive children, and in the fiscal year 1936-1937 a special group of six nurses was detailed on this job. The results more than justified this effort. In the three years immediately preceding 1936-1937 forty-four active cases of pulmonary reinfection type of tuberculosis had been discovered in school children alone out of 4,770 positive reactors. Beginning in 1936-1937, during which year the intensive follow-up system was started, the record shows that there were seven cases found in the schools out of 1,318 Mantoux positive reactors, but to this must be added nine additional cases found in the home follow-up, making a total of sixteen.

In 1937-1938 there were 1,429 positive Mantoux reactions with fourteen cases of active pulmonary tuberculosis found in

the schools, but in the home follow-up an additional eighteen were revealed, making a total of thirty-two cases of active pulmonary tuberculosis.

In 1938-1939 there were 3,194 positive reactors discovered in the schools, among whom there were twenty-four infected with adult type tuberculosis. In the home follow-up work fifty-three additional cases were revealed, making a grand total of seventy-four new previously unknown cases of tuberculosis.

During the years 1933-1936, relying on the school tuberculin testing alone, without intensive follow-up, we discovered forty-four new cases.

During the years 1936-1939 inclusive, the school tuberculin test gave a total of forty-two new cases. The intensive home follow-up brought to light an additional eighty cases, a grand total for these three years of 122 cases, which is to be compared to the forty-four found in the years 1933-1936, or an increase of almost 300 per cent in efficiency.

The effects of this intensive follow-up work on costs may be of interest also. Dr. Plunkett stated that it cost \$1,737 to discover a case in a child under 15 years of age, and I presume that this cost is based on the isolated discovery of the single child. A tabulation of the cost, combining the school and home call work, based on total cases revealed (seventy-four in 1939), gives the average cost per case of \$364. These figures include every item in both school and home calls—roentgenograms and the like. I believe that this is a most reasonable unit cost in this sort of work and certainly compares most favorably with the \$1,737 referred to.

Some few details regarding last year's work may be further interest. There were 12,872 children Mantoux tested in the elementary schools, with 1,607 positive reactors, of whom only 492, largely Mexican children were roentgenographed. In this group there were only six cases of active tuberculosis found, or a ratio of 1 to 268 positive Mantoux positives an additional twenty-nine cases of active tuberculosis was revealed, which gives a yield total of thirty-five for the elementary group.

In the high school and senior high school 7,839 children were tested: 1,512 were positive reactors, 1,504 were roentgenographed and in fifteen cases active tuberculosis were revealed, a ratio of 1 to 100 in the positive group. The follow-up in this group gives an additional twenty-four cases, which, with the fifteen cases discovered among the students, gives a total yield of thirty-nine, which is to be compared to the thirty-five cases the total yield for the elementary school group. It would therefore seem that, regardless of the fact that the total yield is higher in the junior and senior high schools of cases to be discovered among the school children, the increased yield in the home places the tuberculin testing in elementary schools on a more important level so far as discovery of cases in the home is to be considered. This tends to confirm again the statement of Dr. Plunkett that "if a child reacts to tuberculin, the younger the child, the more likely it is that the infection occurred in the home."

Some idea of the considerable amount of work involved in bringing additional persons to tuberculosis clinics for examination is revealed in the following figures:

The total number of home calls in relation to last year's positive reactors (3,194) resulted in 7,335 home visits and the taking of 5,578 Mantoux tests and 3,187 x-ray films. The ratio of positive tuberculosis found to persons roentgenographed in the home follow-ups was 1 in 60. It is interesting to note that during the past three years in the follow-up work a grand total of forty-nine patients with moderately and far advanced tuberculosis were placed under careful supervision with undoubted great benefit to the community and a total of thirty-one patients with minimal tuberculosis placed on the road to recovery.

A study of the figures reveals that the home follow-up work brings under supervision a larger number of those types of tuberculosis dangerous to the public at large as well as in the family, while in the school work for a period of six years the ratio is in the opposite direction, the number of minimal cases to far advanced being 9 to 1.

I heartily concur in the remarks of my good friend Robert E. Plunkett and desire to stress again the great need of careful follow-up work in relation to tuberculin testing in the school; I believe that such careful follow-up work pays sufficiently important dividends that in rural districts the tuberculin testing program in public schools is a weapon in modern case finding and that it should not be abandoned. Furthermore, the price per case found brings the cost to the moderate level of \$364.

Credit is due Dr. P. K. Telford, the head of the Tuberculosis Division of the Los Angeles Department of Health, and the nurses who worked so hard in making the follow-up program a success.

J. L. POMEROY, M.D., Los Angeles.

Los Angeles County Health Officer.

EMERODS

To the Editor:—With regard to your article on "Emerods" in the March 23 issue of THE JOURNAL, Prof. J. G. Adami, teaching pathology at McGill University Faculty of Medicine to my class of 1912, cited this disease as bubonic plague, which was epidemic in London in 1664-1665 and which was somewhat checked by the great fire the year following.

He pointed out the concurrent death of mice, rats and birds, as well as of domestic animals, and accused the fleas leaving these animals, when the latter were dying, and biting human beings about the legs—hence the buboes in the inguinal region—as carriers.

A study of the conditions in London at that time and of the conditions existing at the time of the return of the Ark of the Covenant by the Philistines to the Children of Israel (I Samuel chapter 6, verse 4) will show a close resemblance.

ERLE DRAPER, M.D., C.M., Bedford, Que., Canada.

To the Editor:—In THE JOURNAL, March 23, page 1106, Dr. Otto Neustatter takes issue with the view that the "emerods" referred to in I Samuel represent a syphilitic infection. It is interesting that this passage is usually cited by the historians of bubonic plague as one of the first recorded instances of that disease (Simpson, W. J.: Treatise on Plague, Cambridge, England, 1905). In support of this assumption is the more literal rendering of the Hebrew "ophlim" as "swellings." This term has been taken as implying the buboes of plague. An epidemic and highly fatal disease associated with swellings is descriptive of plague.

Furthermore, the God of Israel was to be appeased by the making of "images of your mice that mar the land" (I Samuel 6:5). A preceding or concurrent murine epizootic has been frequently noted in the epidemics of the Black Death. It would seem that not only was the pestilence not syphilis (as Dr. Neustatter has so well pointed out) but was most likely an epidemic of bubonic plague.

IRVING A. BECK, M.D., Providence, R. I.

To the Editor:—In THE JOURNAL, March 23, there is an article by Otto Neustatter on "Emerods."

Unless he uses some other Bible than the St. James version, the account of this is not in II Samuel but is recorded in chapters 4-5 and 6 of I Samuel.

The ark was captured and taken to a Philistine temple, and the next morning the image of Dagon is found on its

face before it. This is followed by an affliction of "emerods"—acute, phlegmonous, purulent tumor masses of the genitalia, so they decide to send it back with a peace offering. This offering took the form of five rough representations of these tumors and of five golden mice. The small black rat was probably translated as mice. In some way they had associated these mice with the disease and there is here undoubtedly an allusion to the plague and its characteristic buboes of the inguinal glands.

This explanation is not original with me. I think it was suggested to me by either Blue or Rucker of the Public Health Service when I was actively assisting them in the suppression of an outbreak of the plague in San Francisco in 1908.

RAWLINS CADWALLADER, M.D., San Francisco.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CONGENITAL DEAFNESS IN INFANTS

To the Editor:—Will you please summarize the present status of the problem of congenital deafness with special reference to diagnosis in the infant, treatment, and problems of education. I will appreciate references.

Louis Linn, M.D., Trenton, N. J.

ANSWER.—Authorities are agreed that the diagnosis of congenital deafness in infants is not easy. There are few tests that can be accurately applied in the case of a child less than 3 years of age.

A deaf child cries but is said not to cry as loudly as a normal one. Tests, such as clapping the hands, slamming doors, and the like, are not reliable, since they introduce too great an element of vibration and tactile sense.

A few observers have studied the conditioned reflex method of determining the presence and nature of hearing in infants, but this is obviously a painstaking, time-consuming and not easily available method. The most practical tests consist in eliciting the various oculopalpebral reflexes in response to loudly struck tuning forks, especially of a pitch of 4,096 double vibrations. The examiner stands behind the child so that his movements are concealed and another observer watches for blinking of the lids and dilatation of the pupils. This test is highly thought of by clinicians, for if an individual hears the C-4 fork there cannot be much impairment of the perceptive apparatus. This response is coupled with other acoustic motor reactions producing a so-called startle pattern, the whole reaction forming a reliable indicator of ability to hear.

Congenitally deaf individuals furthermore, as a rule, have normal labyrinth function, whereas the reverse is often true for persons profoundly deaf because of some inflammatory process.

In older children cooperation in testing permits the use of tuning forks, the audiometer and similar methods. It is thus possible to determine the degree of deafness and the presence or absence of remnants of hearing important in the training and education of the child. It is said that most individuals congenitally deaf are not completely so but possess tone islands and gaps.

Tuning forks and audiometers not being available for use in the very young, observation over a period plays a large part in diagnosis. It is important furthermore to rule out the possible though rare instance of primary mutism with good hearing, but much more is it necessary to rule out mental deficiencies which interfere with proper progress and simulate the delay in speaking seen in the deafened. The services of a child psychiatrist is advisable in such situations. Treatment is given through education by special methods in special schools. Lip reading is started early as is the so-called acoustic method. For the details, one should consult a good school for the deafened.

References:

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- Lederer, F. L.: Diseases of the Ear, Nose and Throat, Philadelphia, F. A. Davis Company, 1938.
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QUERIES AND MINOR NOTES

1951

ESTROGENIC THERAPY AND UTERINE BLEEDING

To the Editor:—A patient says that three years ago both ovaries were removed. She took estrogen by hypodermic for some months. The last several months she has been taking it by mouth. She does not know the size of the dose. This is her first visit to my office. Her chief complaint is a continuous vaginal discharge, bloody as at the beginning of menstruation. It has persisted for three months, gradually showing more blood. Physical examination shows the uterus anterior, small, hard and freely movable. The tubes and ovaries are absent. The cervix is normal. Can the estrogen account for this continuous flow? Would curettage be indicated even if the estrogen could account for the symptoms, to rule out a cancer? Where conditions make removal of ovaries necessary, would it be better to remove the uterus also?

Harlan P. Kahler, M.D., Walla Walla, Wash.

ANSWER.—Administration of estrogenic substance can bring about bleeding from the uterus either while these preparations are being administered or after they are discontinued. When estrogenic therapy is carried out on women who spontaneously ceased having menstrual periods and on women who had an artificial menopause produced by radiotherapy, it is not uncommon to observe uterine bleeding. In spite of this, since the bleeding in this case has persisted for three months, a thorough curettage should be done to rule out carcinoma of the body of the uterus. If there is no cancer, the estrogen should be discontinued gradually, to avoid a possible profuse uterine hemorrhage.

There is no unity of opinion concerning the disposition of the uterus in cases in which both ovaries must be removed. Some gynecologists believe that the uterus has some hormonal action even in the absence of the ovaries and they leave the uterus in situ. However, those who are of the opinion that the uterus has no function in the absence of the ovaries remove it, particularly because a hysterectomy along with removal of both ovaries eliminates one possible source of cancer in women. Most gynecologists prefer to remove the uterus when both ovaries must be sacrificed unless a portion of an ovary can be transplanted somewhere in the body to maintain the endocrine function of the uterus.

URTICARIA AND INTESTINAL PARASITISM

To the Editor:—A patient had hives for two days. One week later there occurred an acute swelling of one finger joint, which responded promptly to hot moist heat. Several days after this there appeared an acute, painful redness and swelling on the inside of the right heel, which also responded to heat. Several days later an acute swelling appeared underneath the right foot sole. This swelling also responded promptly to hot both. An examination disclosed two slightly infected teeth. The stool was loaded with *Amoeba coli*, *Bacillus biltschilli* and *Trichomonas hominis*. Could the symptoms described be caused by this intestinal infection? Could an acute arthritis subside within twelve or twenty-four hours? Would the following course of treatment be considered sufficient: carbosone 0.25 Gm., two capsules daily for ten days, and during this time three retention carbosone enemas, each time with 2 Gm. of carbosone? After this, three times daily, 0.25 Gm. vioform capsules for ten days.

M.D., California.

ANSWER.—One would be reluctant to give this patient any medication other than such simple remedies as calcium gluconate or dicalcium phosphate. Patients who show an allergic imbalance frequently develop similar manifestations through the use of drugs. Therefore one would caution against the use of carbosone and vioform either by mouth or by rectum.

TOBACCO SMOKE FILTERS AND DENICOTINIZING

To the Editor:—1. Has there ever been published a comparative study of the nicotine content of the common brands of cigarettes and so-called denicotinized tobacco products? 2. Is it known to what extent the nicotine content of the smoke is decreased by the denicotinizing process? 3. Is the filtering principle used in the Zeus cigarette holder and pipe more or less efficacious than the denicotinizing process in removing nicotine from tobacco smoke? 4. Is there any evidence that the use of denicotinized tobacco or a filtering device is less "harmful" than the use of tobacco not so treated?

M.D., New York.

ANSWER.—1. The nicotine content of denicotinized and other brands of tobacco products was extensively investigated by E. M. Bailey and his associates (Bull. 295, May 1928, and Bull. 307, May 1929, of the Connecticut Agricultural Experiment Station). Further studies were reported by Emil Bogen (THE JOURNAL, Oct. 12, 1929, p. 1110, and California & West Med. 45:342 [Oct.] 1936).

2. The nicotine content of so-called denicotinized tobacco is on the average from 50 to 70 per cent of that of the average commercial products not so treated but is similar to that of Oriental and West Indian tobaccos. The nicotine content of the smoke is affected by the manner of smoking and the moisture and acidity in the tobacco but is generally proportional to the nicotine content of the tobacco itself.

3. The filtering principle used in the Zeus cigarette holder and pipe is about of the same order of efficiency as the commercial

processes now employed in removing nicotine from tobacco. Data on the efficiency of the principle used in the Zeus products is given by Derr, Riesmeyer and Unangst (Indust. & Engin. Chem. 29:771 [July] 1937). The efficiency of such a device decreases rapidly with use, so that it is necessary to change the filter after smoking from five to ten cigarettes.

4. Either the use of denicotinized products or a filtering device in the holder may diminish the nicotine content of the smoke, but usually only by a maximum of 50 per cent. If assurance on such a measure results in the smoker increasing the number of cigarettes used, as often happens, he may actually absorb more nicotine as a result than if he continued his usual quota. The relative harmfulness of higher concentrations of nicotine in the smoke over shorter periods of time and lower concentrations over longer periods depends on the possible pathologic conditions in the smoker.

HYPOTHYROIDISM OF MOTHER AND CRETINISM

To the Editor:—About a year ago I was called to see a 5 months old infant about a mild gastrointestinal disturbance. The first glance at this child revealed the typical facies of a cretin. The tongue protruded slightly from the constantly open mouth, which drooled profusely. The lips were thick, the nose broad, the expression stupid. The child was moderately active when disturbed enough but had the reputation of being extremely well behaved and was in general passive to external stimuli. He slept more than average and was overweight. There was no umbilical hernia. The parents had not noticed any change in his appearance, so I assumed that his facies was not a recent acquisition. The drooling was known to have been present for some time. The child began teething at the end of the fifth month, crawled and his interest in things about him approached normal and from then on his mental development has apparently been normal. After the first year the drooling had about ceased. Teething progressed normally and now at the age of 17 months he walks steadily, his tongue does not protrude, his mouth is large but closed most of the time, his expression is bright, and the anterior fontanel admits one fingertip. He has received no thyroid or other specific treatment. The father and mother are both intelligent and attractive in appearance. One child died shortly after birth because of congenital absence of part of the anterior abdominal wall. Does hypothyroidism in the mother lead to intra-uterine exhaustion of the baby's thyroid? What is the explanation of this apparently temporary lack of thyroid function in the early months of this child's life?

M.D., Maryland.

ANSWER.—The development of the child was so normal with regard to crawling, sitting up, dentition, cerebration and walking that the presence of an underfunction of the thyroid seems improbable. The spontaneous disappearance of cretinism has not been observed. There is no evidence that hypothyroidism in the mother leads to "intra-uterine exhaustion of the baby's thyroid," but cretinism appears to be more common among the offspring of hypothyroid mothers than among those of mothers with normal thyroid glands.

EFFECT OF EPHEDRINE ON HEART

To the Editor:—A man aged 23 on two different occasions, about a week apart, after taking three-eighths grain (0.024 Gm.) of ephedrine in capsule form within a relatively short time became heart conscious because of frequent extrasystoles. The first spell lasted several hours. The second was apparently shorter, 3 grains (0.2 Gm.) of quinidine having been administered about half an hour after the extrasystoles began. On many occasions over a period of years the patient has taken ephedrine internally and used it intranasally without the slightest disturbance of cardiac rhythm. Have there been reports of similar cases? It is the first one I have ever encountered, although I have seen many patients who have taken ephedrine internally or used it locally for many years and in fairly large quantities without ever having any such disturbance.

M.D., California.

ANSWER.—Such effects of ephedrine occur occasionally, and the possibility of their occurrence should always be considered when it is administered. In a few cases it has caused acceleration of the heart rate. Usually, however, the heart rate is slowed and there is an increase in both systolic and diastolic blood pressure. There may be frequent extrasystoles of ventricular origin. There may be a sensation of throbbing in the head. A sense of anxiety occasionally occurs.

PRURITUS ANI

To the Editor:—Could you tell me where "Benacol," as recommended by Yeomans for injection in pruritus ani, may be obtained?

Lowell C. Smith, M.D., Lafayette, Ind.

ANSWER.—Benacol Solution, according to information available, is the trade name under which the Seydel Chemical Company markets a mixture stated to contain 5 parts of the benzoic acid ester of oil of sweet almond. The Seydel Chemical Company presented Benacol for consideration by the Council on Pharmacy and Chemistry early in 1930. As evidence for the value of the preparation, which is

28. Sec., Dr. E. C. Murphy, 314 E. Grand Ave., Eau Claire.

BOOK NOTICES

Book Notices

Injuries of the Skull, Brain and Spinal Cord: Neuro-Psychiatric, Surgical, and Medico-Legal Aspects. Edited by Samuel Brock. Cloth. Price, \$7. Pp. 632, with 63 illustrations. Baltimore: William Wood & Company, 1940.

Here is a book of unusual excellence. "The twenty-two contributors to this work have actually written a series of comprehensive monographs on neurology, psychiatry, neurosurgery (in its civil and military aspects), radiology and forensic medicine, as far as these subjects relate to injuries of the skull, brain and spinal cord." The twenty-two chapters are uniformly well written, with but one exception. Chapter 10, on cerebral

injuries, is not of the standard set by the rest of the book. This chapter consists largely of generalizations many of which are neither commonly accepted nor substantiated by any factual data. On pages 216-217 the conclusions of Schreiber are criticized but evidence is not presented to disprove Schreiber's fairly well documented contention that asphyxia is responsible for many of the so-called congenital disorders of the brain. On page 218 is the statement, of questionable accuracy, that "chronic subdural hemorrhages of infancy and childhood are unrelated to the birth process." Again evidence is not adduced to support this dictum, which furthermore is in direct contradiction to a statement made on page 137 of the same volume.

On page 219 encephalography is advocated for the purpose of diagnosing subdural hemorrhage in newborn infants. (in infants) are fatal." It must be apparent that this is a dogmatic statement that may be true but is almost impossible of proof. On page 228 in a discussion of the pathophysiology of cerebral diplegia all of the relevant work done in the department of physiology at Yale has been completely ignored. On page 230 the statement that "removal of the roof of the (porencephalic) t causes cessation of the convulsions" is unfortunately not ways true. Neither is the statement that "drug therapy is effective" in such cases. The author has also been careless with his figures. On page 209 "about 0.085 per cent" should read "about 8.5 per cent" if the figures are correct as given. On page 222 it is stated that the "percentage of intracranial hemorrhage in the newborn" varies, according to the literature, from 12 to 85 per cent. Obviously the percentage in newborn infants that die is meant.

One possible general criticism of the book is the fact that there are but sixty-three illustrations. This is not a serious defect but additional illustrative material, particularly of gross pathologic specimens, would have enhanced the value of the book. There are abundant relevant references to the literature and a good index.

But few errors and misstatements occur in the book and they detract little from its very real value. They would not be worthy of mention did it not seem likely that the book would soon be reprinted.

On page 103 surely a superficial, not a "rough," examination is meant. On page 116 it is doubtful whether Wernicke's hemianopic pupillary reaction is ever "easily demonstrated." On page 120 some other salt of bromine than that of sodium is more logical in the treatment of aural vertigo. On page 121 interruption of the glossopharyngeal nerve does not result in "difficulty in swallowing," although interruption of the vagus does. On page 240 the attacks suffered by patient 5 appear to have been cerebellar fits rather than epileptiform convulsions. This may account for some of the difficulties encountered by the author in interpreting this case. On pages 241 and 245 is not the posterior cerebral rather than the occipital artery meant? On page 316 the statement "The traumatic psychosis may also occur when the major lesion is apparently outside the brain proper as in subdural and epidural hemorrhages" is the result of confused thinking. On page 422 it is doubtful that the internal hydrocephalus commonly associated with subdural hematomas results from "a block in the aqueduct of Sylvius." Rather, obliteration of the cerebral subarachnoid spaces is a more likely cause. On page 482 it is doubtful whether the statement that "the ligamenta flava . . . constitute an integral part of the [intervertebral] disks" would be acceptable to

most anatomists. On page 492 Oppenheim's disease and Wernig-Hoffmann muscular atrophy have been omitted from the discussion of the differential diagnosis of injuries of the spinal cord sustained at birth. On page 519, in the discussion of the reduction of fracture-dislocations of the cervical spine, the use of skeletal traction applied by tongs or wires inserted in the skull, which is now one of the commonest methods of treatment, is ignored. On page 584, in some states, at least, "an accident resulting from a violation of the employer's rules or orders" is compensable. In a few instances considerable violence has been done to the English language; on page 220 "If the child is in poor shape"; on page 487 "sixty-four breccia deaths." Others on pages 103 and 224 have been noted.

It is doubtful whether the treatment of osteomyelitis of the skull presented on pages 59 to 67, which is reminiscent of a decade ago, will meet with general approval. Chapter 4, on concussion and contusion of the brain and their sequelae, is excellent. Yet it is difficult to agree with the author that mere similarity of the course of events is sufficient evidence on which to conclude that "the nature of the injury causing unconsciousness" is the same in patients suffering from concussion with unconsciousness of but a few minutes duration as in those in whom it persists for hours or days. It should also be noted that dehydration produced by magnesium sulfate by mouth has largely been abandoned as a form of treatment in cases of head injury in this country.

Chapter 12, on neuroses following head and brain injuries, is another that is instructive and interesting. It is obvious, however, that the author has been unable to do much to clarify the confusion as to what symptoms are the result of anatomic cerebral change and which are psychogenic. It is equally clear that he shares this confusion. He states that by definition traumatic neuroses merely follow physical changes which were be the result of the anatomical-physiological changes which were provoked by the trauma." Yet on pages 279-280 is found the statement "I differentiate, therefore, the neurosis after head injuries from other traumatic neuroses. This separation is based upon the production of changes in cerebral mechanisms facilitating neuroses."

On page 329, in discussing the psychotic states that follow cerebral injury, the authors appropriately emphasize the all too frequently unrecognized dangers of dehydration. This danger might well have found more extensive consideration elsewhere in this volume.

It should be repeated that the faults, where they are faults, although they have been cited in great detail, are in reality few indeed. This is a splendid book. It will prove of great usefulness to almost all branches of the medical profession. Certain of the chapters are small masterpieces and merit extensive study. Most noteworthy are chapter 4, on concussion and contusion, chapter 12, on the neuroses, chapter 15, on the relationship of brain injury to other organic diseases of the brain, and chapter 16, on the roentgenologic aspects of fracture of the skull and injuries of the brain.

Ether-Soluble Plasma Phosphatides in Schizophrenia. By Erkki Jokila. To be presented, with the permission of the Medical Faculty of the University of Helsinki, for Public Criticism in the Auditorium XII on November 8th 1939 at 12 Noon. Acta psychiatrica et neurologica, Supplementum XXI. Paper. Pp. 98, with one illustration. Copenhagen: Ejnar Munksgaard, 1939.

After a brief report on earlier works on lipids in schizophrenia the author's aim is to determine whether any definite changes occur in the phosphorus values of the plasmaphosphatides in schizophrenia. The phosphorus values of the ether-soluble phosphatides have been determined with a "stufenphotometer" according to a modified Bloor technic. Normal data were obtained by investigating twenty male and female attendants who lived on almost the same diet as the patients. The normal values for the ether-soluble plasma phosphatides vary from 8.42 to 12.87 mg. per hundred cubic centimeters (women show slightly higher values than the mean value of 10.22). The type of build (pyknic, leptosomatic and so on) has no distinct influence on the values, although in the pyknic group the average values are slightly higher than in the other groups. The average phosphorus value for the plasma phosphatides in forty cases of acute schizophrenia is 5.49 mg. per hundred cubic centimeters. This value is 4.43 mg. lower than

the average for normal subjects (153 determinations). In chronic schizophrenia the mean phosphorus value for the ether-soluble plasma phosphatides was 5.46 mg. per hundred cubic centimeters, or almost exactly the same as the mean value for acute cases (eighteen determinations). In defect schizophrenia the mean value was 8.30 mg. per hundred cubic centimeters, or slightly below the lower limit of 8.42 mg. for normal cases (forty tests). In cases in which metrazol or insulin treatment caused no improvement, the phosphatide values either decreased or remained unchanged. There is a rise in the phosphatide values in 47.6 per cent and a decrease in 52.4 per cent of the improved cases. According to the statements of the author there is a definite relation between the schizophrenic process and the decrease of plasma phosphatides.

Textbook of the Principles and Practice of Nursing. By Bertha Harmer, R.N., A.M., and Virginia Henderson, R.N., A.M., Instructor in Nursing Education, Teachers College, Columbia University, New York City. Fourth edition. Cloth. Price, \$3. Pp. 1,047, with 256 illustrations. New York: Macmillan Company, 1939.

This comprehensive textbook dealing with hospital, home, public health and private duty nursing is divided into five parts: nursing and community health service, fundamentals of nursing care, assisting with diagnosis procedures, assisting the physician with therapeutic measures, and introduction to medical and surgical nursing. Each chapter has at its beginning a numbered table revealing the subject material covered, which increases the value of the work as a reference book. A bibliography is appended at the end of each chapter. In this edition a new sequence of topics has been adopted, the scope of the text has been enlarged and techniques have been included that were not in general use at the time of publication of the previous edition. The material represents not only local opinion on the many phases of nursing but ideas from all over the world. Illustrations, charts and tables are appropriate and easily understood and should be helpful to the student nurse. On the whole, this book should be of much assistance to nursing instructors as well as to nurses in the field. It is a real tribute to the broad outlook of the authors.

Ergebnisse der physikalisch-diätetischen Therapie. Herausgegeben von Prof. Dr. H. Lampert, Direktor des Univ.-Inst. für physikalische Therapie, Frankfurt a. M., in Gemeinschaft mit Prof. Dr. W. Heupke, Oberarzt an der Med. Universitäts-Poliklinik Frankfurt a. M., Hofrat Dr. J. Kowarschik, Primararzt und Vorstand des Institutes für physikalische Heilmethoden im Krankenhaus der Stadt Wien, und Doz. Dr. J. Kühnau, Direktor des Städt. Forsch.-Inst. für Bäderkunde und Rheumaklinik, Wiesbaden. Band I. Paper. Price, 25 marks. Pp. 410, with 94 illustrations. Dresden & Leipzig: Theodor Steinkopff, 1939.

This is the first of a series of monographs the object of which according to the preface is to report on new progress as well as on standard methods in physical therapy, in nutrition and dietetics including hormones and vitamins, in balneology and climatology, and in "sport medicine." Physical and dietetic methods have always been used in combination by German clinicians, especially at the spas, but under the new régime it has now been decreed not only that they are entitled to equal consideration with chemical or drug therapeutics but that increased attention must be paid to all "natural" healing methods. Many lay naturopaths accordingly have been admitted to practice their cult. The eleven monographs of this volume, however, have been written by prominent medical men and include a large variety of topics. The work treatment of diabetes is presented by Katsch, of Greifswald University, director of a diabetic home at the island of Rügen. Fever therapy with special regard to hot water baths is the work of Lampert, who finds hyperpyrexia by hot baths simple, safe and easily controllable. Gruner, of Lampert's institute, reports on the scientific basis of the partial bath, with special studies of its effect on the two principal constitutional types, the A or vagotonic type and the B or sympathicotonic. The practice and theory of thalassotherapy are presented by Häberlin, of Wyk, on the island of Föhr, and Amelung, of Königstein, writes on the limitation of artificial climate and the therapeutic necessity of the natural climate. There is an excellent presentation of the status of short wave diathermy by Kowarschik. There are contributions on the influence of preparation on the digestibility of vegetable foods by Heupke, of Frankfurt on the Main, the dietetic treatment of cutaneous diseases by Schubert, of Frankfurt on the Main, accessory food-stuffs in the nutrition of pregnant women by Gaehtgens, of

Leipzig, physical dietetic treatment of exophthalmic goiter by May, of Kreuth, and protamine zinc insulin by Reinwein, of Giessen. There are many illustrations and tables. An extensive bibliography is appended to each monograph, and there is a complete subject and author index at the end of the volume, which lives up to the best German tradition of thorough study and scholarly presentation.

Lehrbuch der Augenheilkunde. Von Dr. Ernst Fuchs. Sixteenth edition by Dr. Adalbert Fuchs, a. o. Professor der Augenheilkunde an der Universität in Wien. Paper. Price, 27 marks. Pp. 917, with 367 illustrations. Vienna: Franz Deuticke, 1939.

This edition of a worldwide recognized textbook of ophthalmology is revised by the author's son, Dr. Adalbert Fuchs. The previous three German editions were edited by Prof. M. Salzmann, of Graz, Austria. No word of comment need be added to characterize a volume which has had sixteen editions in the original language and has been translated for the use of ophthalmologists in nearly every country of the globe. Previous English translations and editorship were under the capable hands of the late Dr. Alexander Duane, except for the fifteenth edition. Many of Dr. Duane's additions have found their way into the later German revisions. The contributions made by Adalbert Fuchs to the present volume consist of excellent plates and descriptions of pathologic material taken from his own two volumes concerning the pathology of the eye by the same publisher. The specific contributions of Professor Salzmann consisting of colored plates of fundic conditions have been retained in the present volume. For readers of German the thoroughness and modernization of this volume leave little to be desired.

Recent Advances in Anesthesia and Analgesia (Including Oxygen Therapy). By C. Langton Hewer, M.B., B.S., D.A., Anesthetist and Demonstrator of Anesthetics, St. Bartholomew's Hospital, London. Third edition. Cloth. Price, \$5. Pp. 333, with 132 illustrations. Philadelphia: Blakiston Company, 1939.

The author has done a rather good job of briefly mentioning most of the recent advances in anesthesia and analgesia, including oxygen therapy. Of necessity he must write concerning material that he himself is not familiar with and therefore the proof reading of such a volume is of the greatest importance, for publications concerning the use of anesthetics must be specific; if doses are erroneously stated, fatal results may occur. This is illustrated on page 152, where the author in speaking of pontocaine recommends a dose of 1 mg. per pound of body weight, plus 5 mg. Actually, this is the dose that should be recommended for procaine rather than pontocaine. In all probability the dose of pontocaine mentioned would be fatal in every case in which it was used or would leave the patient permanently paralyzed. The reference to this dose in the bibliography cannot be verified as to author or dose. For the most part the book is excellent, but the reader should realize that he cannot hold the author responsible for possible errors and that when an interesting agent or method has been briefly discussed the original authors should be referred to so that no misunderstanding can result through possible typographic or other error. This book will appeal to the experienced anesthetist more than to the student. One of the best features is the author's method of inserting the references in the bibliography.

The Prognosis of Open Pulmonary Tuberculosis: A Clinical-Statistical Analysis. By Gunnar Berg. Acta tuberculosea Scandinavica, Supplementum IV. Paper. Pp. 207, with 25 illustrations. Copenhagen: Einar Munksgaard, 1939.

Berg presents a review of the available literature on the prognosis in pulmonary tuberculosis. He then reports 6,156 cases in which tubercle bacilli were present in the sputum which had been seen in the city of Gothenburg between 1910 and 1934. The patients were all adults. He found that from 70 to 80 per cent of patients suffering from pulmonary tuberculosis with bacilli in the sputum die within ten years. While the death rate is highest during the early years after the diagnosis is made and gradually decreases as the years pass, it is still four times as high as the normal death rate among those who survive twenty years. The mortality depends somewhat on the age at which the disease develops. For example, among those of from 15 to 19 years 82.3 per cent die within ten years, while of those who contract the disease between 35 and 39 years 70.3 per cent die within ten years. The death rate is especially

high for those who are found to have the disease beyond the age of 50 years. He found that collapse therapy did not affect the ultimate prognosis as much as one might expect. Indeed, he says, a rough estimate shows that collapse treatment cannot have been important as a direct cause of the decreased general mortality from pulmonary tuberculosis. However, because of the negative results, he urges that this must not be interpreted as a reason for abandoning collapse therapy, since the possibility that this kind of treatment has a small effect could not be entirely excluded from his observations and under such circumstances he believes that this method of treatment must be utilized as long as more effective methods are not available.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Death from Perforation of Gastric Ulcer Induced by Worry Compensable.—The claimant, wife of the deceased employee, filed a claim for compensation under the workmen's compensation act of Michigan for the death of her husband. The department of labor and industry awarded compensation and the employer appealed to the Supreme Court of Michigan.

For some time prior to Dec. 23, 1935, the employee had suffered from "stomach trouble." On the date mentioned he sustained a hernia in the course of his employment, for which he underwent an operation in February 1936. For this injury, the employee was paid compensation. A few days after the operation, pleurisy developed, but this seemed to clear up and he returned to work about eight weeks after being discharged from the hospital. Though continuing at work, the employee steadily lost weight, complained of pain in the abdomen and was always tired and his appetite was impaired. On Jan. 25, 1937, the employee underwent another operation and it was then discovered that a gastric ulcer had perforated the stomach. He died five days later from general peritonitis.

There was medical testimony to the effect that the treatment of a gastric ulcer consists essentially of rest, freedom from worry and generally building up the body vitality; that "worry is one of the prime causes of increasing the acidity of the stomach juice, which is a prime cause in speeding up the cause of ulcer, if not causing it"; that if the employee failed to regain his health following the injury "we have all of the factors which would have activated a pre-existing ulcer or speeding its course whenever it developed," and that, therefore, the perforation of the ulcer was directly connected with the industrial injury suffered by the employee. Although, said the Supreme Court, the testimony of the medical experts relied on by the department may not seem convincing, a court is not at liberty to weigh it or pass on the preponderance. In sustaining the award, the court quoted as follows from *Swanson v. Oliver Iron Mining Co.*, 266 Mich. 121, 253 N. W. 239:

It is claimed there was no testimony indicating the injury suffered by Carl Swanson was the proximate cause of his death. He would have died some time anyway. Death is the common fate of man. The question is whether the injury accelerated his death; whether, by reason of the injury suffered by him, his death occurred sooner than it probably otherwise would. There was testimony indicating the injury suffered lowered his vitality and probably shortened his life. This was sufficient.

—*Richard v. Bridgeman-Russell Co. et al. (Mich.)*, 284 N. W. 689.

Accident Insurance: Death from Septicemia and Erysipelas an Accidental Death.—The defendant insurance company promised to pay double indemnity to the beneficiary under a life insurance policy if the insured's death "resulted directly and independently of all other causes from bodily injuries effected solely through external, violent and accidental causes, . . . by visible contusion or wound on the exterior of the body," provided that death did not "result directly or indirectly wholly or partly from . . . bacterial infections or from any disease." The insured, who was in good health and had no

known preexisting infection or disease, sustained as a result of a friendly scuffle with a friend a slight abrasion on one of his cheeks. Within a few days erysipelas, with cutaneous eruptions and sore throat, developed. A few days later he died of septicemia and erysipelas, the sore throat being a contributing cause. The defendant company paid the insured's wife, the beneficiary, ordinary life insurance benefits but refused to pay her double indemnity. The beneficiary then sued the defendant company to recover double indemnity benefits. The medical testimony was in accord that the abrasion on one of the insured's cheeks was the portal of entry into his body of the streptococci which caused the erysipelas and septicemia. From a judgment in favor of the plaintiff, the defendant insurance company appealed to the Supreme Court of Oklahoma.

The contention of the defendant company that it was not liable to pay double indemnity because the insured's death resulted from bacterial infection and disease did not meet with the approval of the Supreme Court. The policy of insurance in question did not exclude from its coverage infection and disease which follow and are attributable to an accident. It excluded only such infection and disease as predated the accident or accompanied or followed it without any causal relation to it. If the law were otherwise, said the court, under a policy of insurance which covers death occurring within ninety days of an accident, as did the policy in the instant case, an accidental injury which was certain to produce death within some thirty or sixty days would not be covered and so would not entitle the beneficiary to double indemnity if in the meantime the insured developed an infection or disease, even though such infection or disease was directly and unmistakably produced by the injury. Accordingly, the Supreme Court affirmed the judgment in favor of the beneficiary.—*Central States Life Ins. Co. v. Jordan (Okla.)*, 86 P. (2d) 640.

Workmen's Compensation Acts: Compensability of Death Following Mental Overexertion.—The employee was a timekeeper for the defendant company. During the latter part of July 1934, at a time when the temperature ranged from 87 to 90 F., he worked steadily for twenty-three hours in an effort to locate an error in the payroll records. Just as the error was discovered he slumped in his seat and died. The industrial board awarded compensation to the employee's widow and children on a finding that "twenty-three hours of continuous work constituted extraordinary exertion and that this extraordinary exertion is indirectly and causally connected with and responsible for the death of the decedent, said exertion and great mental effort, coupled with the fact that the decedent suffered from arteriosclerosis, resulting in his death from a cerebral hemorrhage." The court of common pleas, Montgomery County, Pa., affirmed the award and the employer appealed to the superior court of Pennsylvania.

In sustaining the judgment of the trial court, the superior court said: "The novel feature of this case is that the overexertion relied upon was more mental than muscular. We see no reason for holding that the overexertion which may make an injury or death resulting therefrom compensable must be solely physical in character. Authoritative definitions of 'exertion' do not confine its use to muscular effort. . . . As expressed by the court below, there is no fundamental difference in law or principle between an injury or death caused by the cutting or crushing of a blood vessel in the brain through the application of external violence and the putting forth through increased internal pressure due to the employer of an unusual or abnormal mental effort." The employer appealed to the Supreme Court of Pennsylvania.

The testimony given by the expert witnesses in this case, said the Supreme Court, can support but one conclusion, namely, that it would be impossible in the course of employment, the result of an accident in the course of employment, that a family physician of the employee testified that any exertion or strain is liable to cause a hemorrhage where one is suffering from a disease of the cardiovascular system and that extra long hours of work might be an excessive strain which would accelerate death. He was unable to state, however, that the death in this case was the result of such a cause. A second physician, who was called when the employee died, was of the

opinion that death was due either to cerebral apoplexy or to an acute dilatation of the heart. He said that without an autopsy it would be impossible to state accurately from which cause the death resulted but ventured the opinion that acute dilatation of the heart was the most probable cause of death. He further stated, however, that the death had no relation to the employee's work but on the contrary was a natural consequence of the disease from which he suffered. A heart specialist, called by the referee at the claimant's request, testified that twenty-three hours' effort without cessation might have been a contributing factor in the death. He testified, further, that persons affected with arteriosclerosis are just as likely to die without any excessive mental or physical effort. Another heart specialist concluded that the death was not necessarily attributable to overexertion and expressed the opinion that "the cause of death most likely was coronary thrombosis." A fifth medical witness, who had never seen the employee either before or after his death, testified that he was of the opinion that death resulted from a cerebral hemorrhage and that death was accelerated by overexertion.

Of the five medical experts called, the court pointed out, four testified unequivocally that it was impossible definitely to establish any relationship between the extra hours of work and the death. The one physician who attempted to establish such a connection succeeded only in showing that overexertion could have brought about the death. To say, therefore, that death resulted from long hours of work, the court concluded, was at most a pure guess. The judgment of the superior court for the claimant was therefore reversed and judgment entered for the employer.—*Monahan v. Seeds & Durlam et al. (Pa.)*, 3 A. (2d) 998; 6 A. (2d) 889.

Workmen's Compensation Acts: Disability Resulting from Inhalation of Paint Fumes Not an Occupational Disease.—During the last four months of his employment as a metal worker and upholsterer the workman was exposed about four times a week for short periods of time to paint fumes discharged from a spray gun used by a fellow worker. On several of these occasions he became ill. After such an exposure on Oct. 9, 1937, he was forced to quit work and procure medical attention. In proceedings which he subsequently instituted under the workmen's compensation act of Oklahoma, based on an allegation that he had sustained an accidental injury as a result of the exposure to paint fumes, the two physicians who attended him testified that he "had a vasomotor disturbance" brought on by the exposure to paint fumes. Medical evidence offered on behalf of his employer and the insurance carrier, according to the reported decision, "definitely excluded any claim that respondent [the workman] might be suffering from an occupational disease." The industrial commission awarded him compensation and the employer and his insurance carrier obtained a review of the award in the Supreme Court of Oklahoma.

It was contended, among other things, that the disability of the workman was due to an occupational disease and not to an accidental injury and that a finding by the industrial commission that that disability had resulted from the inhalation of paint fumes established as a matter of law that an occupational disease was the cause of the disability. While it is settled in Oklahoma, said the Supreme Court, that compensation may not be awarded for a disability which results from an occupational disease, that principle is not here applicable, since the medical evidence adduced by the employer and the insurance carrier definitely eliminated from consideration any contention that the workman might be suffering from an occupational disease. It is likewise a settled doctrine in Oklahoma that the benefits of the workmen's compensation act are not confined to cases of traumatic injury and that inhalation of vapors, gas or dust may constitute an accidental injury within the meaning of the compensation act. The Supreme Court believed, accordingly, that there was competent evidence before the industrial commission to sustain a finding of accidental injury.

The award in favor of the workman, however, was vacated on other grounds not here material.—*Ross v. Ross (Okla.)*, 89 P. (2d) 338.

Society Proceedings

COMING MEETINGS

- American Medical Association, New York, June 10-14. Dr. Olin West, 535 N. Dearborn St., Chicago, Secretary.
- American Association for the Surgery of Trauma, Atlantic City, N. J., June 7-8. Dr. Ralph G. Carothers, 409 Broadway, Cincinnati, Secretary.
- American Association for Thoracic Surgery, Cleveland, June 6-8. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.
- American Association of Genito-Urinary Surgeons, Skytop, Pa., June 20-22. Dr. Charles C. Higgins, 2020 East 93d St., Cleveland, Secretary.
- American Association on Mental Deficiency, Atlantic City, N. J., May 22-26. Dr. E. Arthur Whitney, Washington Road, Elwyn, Pa., Secretary.
- American Broncho-Esophagological Association, New York, June 5. Dr. Paul Holinger, 1150 N. State St., Chicago, Secretary.
- American College of Chest Physicians, New York, June 8-10. Dr. Robert B. Homan Jr., P. O. Box 1069, El Paso, Texas, Secretary.
- American College of Radiology, New York, June 12. Mr. M. F. Cahal, 540 North Michigan Blvd., Chicago, Executive Secretary.
- American Gastro-Enterological Association, Atlantic City, N. J., June 10-11. Dr. Albert F. R. Andresen, 88 Sixth Ave., Brooklyn, N. Y., Secretary.
- American Gynecological Society, Quebec, Canada, June 17-19. Dr. Richard W. TeLinde, 11 East Chase St., Baltimore, Secretary.
- American Heart Association, New York, June 7-8. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.
- American Laryngological Association, Rye, N. Y., May 27-29. Dr. C. J. Imperatori, 108 East 38th St., New York, Secretary.
- American Laryngological, Rhinological and Otolological Society, New York, June 6-8. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.
- American Medical Women's Association, New York, June 9-10. Dr. Elizabeth Parker, 1835 Eye St., Washington, D. C., Secretary.
- American Neurological Association, Rye, N. Y., June 5-7. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.
- American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.
- American Otolological Society, Rye, N. Y., May 30-31. Dr. Isidore Friesner, 36 East 73d St., New York, Secretary Pro-Tem.
- American Physiotherapy Association, New York, June 23-28. Mrs. Eloise T. Landis, 2065 Adelbert Rd., Cleveland, Secretary.
- American Proctologic Society, Richmond, Va., June 9-11. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.
- American Psychiatric Association, Cincinnati, May 20-24. Dr. Arthur H. Ruggles, 305 Blackstone Blvd., Providence, R. I., Secretary.
- American Radium Society, New York, June 10-11. Dr. William E. Costolow, 1407 South Hope St., Los Angeles, Secretary.
- American Rheumatism Association, New York, June 10. Dr. Loring T. Swain, 372 Marlborough St., Boston, Secretary.
- American Society of Clinical Pathologists, New York, June 6-10. Dr. Alfred S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.
- American Therapeutic Society, New York, June 7-8. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Secretary.
- American Urological Association, Buffalo, N. Y., June 24-27. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.
- Association for the Study of Internal Secretions, New York, June 10-11. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.
- Connecticut State Medical Society, Hartford, May 22-23. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.
- Illinois State Medical Society, Peoria, May 21-23. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.
- Kansas Medical Society, Wichita, May 13-16. Mr. Clarence G. Munns, 112 West Sixth St., Topeka, Executive Secretary.
- Maine Medical Association, Rangeley Lakes, June 23-25. Dr. F. R. Carter, 22 Arsenal St., Portland, Secretary.
- Massachusetts Medical Society, Boston, May 21-22. Dr. Alexander S. Begg, 8 Fenway, Boston, Secretary.
- Medical Library Association, Portland, Ore., June 25-27. Miss Anna C. Holt, 25 Shattuck St., Boston, Secretary.
- Mississippi State Medical Association, Jackson, May 14-16. Dr. T. M. Dye, McWilliams Bldg., Clarksdale, Secretary.
- Montana Medical Association of Bozeman, June 18-20. Dr. Thomas F. Walker, 206 Medical Arts Building, Great Falls, Secretary.
- National Gastroenterological Association, New York, June 4-6. Dr. G. Randolph Manning, Room 319, 1819 Broadway, New York, Secretary.
- National Tuberculosis Association, Cleveland, June 3-6. Dr. Charles J. Hatfield, 50 West 50th St., New York, Secretary.
- New Hampshire Medical Society, Manchester, May 14-15. Dr. Carleton R. Metcalf, 5 South State St., Concord, Secretary.
- New Jersey Medical Society of Atlantic City, June 4-6. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.
- New Mexico Medical Society, Albuquerque, May 27-29. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.
- New York State Association of Public Health Laboratories, Rochester, May 20. Miss Mary B. Kirkbride, New Scotland Ave., Albany, Secretary.
- North Carolina Medical Society of the State of, Pinehurst, May 13-15. Dr. T. W. M. Long, 321 Hamilton St., Roanoke Rapids, Secretary.
- Ohio State Medical Association, Cincinnati, May 14-16. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.
- Pacific Northwest Medical Association, Spokane, Wash., June 26-29. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
- Rhode Island Medical Society, Providence, June 5-6. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.
- Society of Surgeons of New Jersey, Paterson, May 22. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.
- South Dakota State Medical Association, Watertown, May 20-22. Dr. Clarence E. Sherwood, Madison, Secretary.
- Texas State Medical Association of Dallas, May 13-16. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

Current Medical Literature

CURRENT MEDICAL LITERATURE

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1930 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York 38:159-318 (Feb.) 1940. Partial Index

- Effects of Colchicine and Radiation on Growth of Normal Tissues and Tumors. A. M. Bruce, Beula B. Marble and Elizabeth B. Jackson, Boston.—p. 159.
Effect of Sex Hormones on Growth of Transplanted Mammary Adenoma in Rats. F. E. Mohs, Madison, Wis.—p. 212.
Effect of Hyalinization in Mouse Uterus Produced by Injections of Estrogen and Changes in Mammary Gland and Ovaries After Cessation of Injections. V. Suntzeff, R. S. Balch and L. Loeb, St. Louis.—p. 217.
Results of "Functional Test" in Strain of Mice (C57 Black) with Low Breast Tumor Incidence. C. C. Little and J. Pearsons, Bar Harbor, Maine.—p. 224.
Observations on Three Functional Tests in High-Tumor and Low-Tumor Strain of Mice. Elizabeth Fekete, Bar Harbor, Maine.—p. 234.
Problems of Tissue Specificity and Chemotherapy of Cancer. L. C. Strong, New Haven, Conn.—p. 243.
Urinary Cholesterol in Cancer: II. H. Sobotka, Edith Bloch and A. B. Rosenbloom, New York.—p. 253.
Cancer of Tongue in Young Subjects: Report of Case. G. W. Saleeby, Beirut, Lebanon, Syria.—p. 257.
Simultaneous Occurrence of Two Types of Metastasizing Carcinoma in Stomach. P. J. Schneider, Baltimore.—p. 263.
Experiment in Feeding Wheat Germ Oil Prepared by Ether Extraction. D. L. Rider, Chicago.—p. 275.

American Journal of Clinical Pathology, Baltimore 10:133-204 (Feb.) 1940

- Identification of Inclusions in Virus Diseases. E. V. Cowdry, St. Louis.—p. 133.
Microprothrombin Test with Capillary Whole Blood: Modification of Quick's Quantitative Method. K. Kato, Chicago.—p. 147.
Prothrombin Studies, Especially in the Newborn. W. E. Bray and O. R. Kelley, Charlottesville, Va.—p. 154.
Dark Adaptation and Vitamin A Deficiency: New Technic. A. G. Sheffel, Los Angeles.—p. 168.
Laboratory Diagnosis of Undulant Fever. L. Foshay, Cincinnati.—p. 176.
Detection, Identification and Quantitative Determination of Methyl Formate in Tissues: Report of Fatal Case. A. O. Gettler, New York.—p. 188.

Laboratory Diagnosis of Undulant Fever.—With proper materials and technic, *Brucella* can be recovered from the blood or body fluids of a fairly high proportion of patients with acute and subacute brucellosis. Foshay, however, points out that in the chronic stages of the disease, where the need for accurate diagnosis is the greatest, cultures from these sources are seldom successful. The reliability of the serum agglutination test suffers from various causes. Antigens used in one laboratory may not be agglutinated by a serum which agglutinates the strains from another laboratory. From 6 to 10 per cent of culturally proved acute cases fail to agglutinate. In other cases agglutinins appear only during the acute initial phase and seldom or never thereafter. In still others, agglutinins appear intermittently at irregular and unpredictable intervals. Agglutinins once acquired by infection may persist for years thereafter. Cross agglutination occurs infrequently but seldom causes much trouble in serums from patients. In the chronic disease a low titer, if any agglutination at all, is obtained, and it seems that there is no advantage to be gained by establishing a critical threshold. This would serve to emphasize the value of this test as an isolated diagnostic procedure and in the author's opinion it has already been overemphasized in this respect. Intradermal tests with vaccines, filtrates or protein derivatives of *Brucella* cells are useful. The defects of agglutination and intradermal tests lead Huddleson to revive phagocytic studies as diagnostic aids. Repeated monthly studies of many individuals over periods of years have partially confirmed the general usefulness of the procedure; nevertheless the Huddleson criteria cannot be accepted without reservations. The intradermal injection of specific immune serum is another diagnostic procedure in the

stage of experimental study. In tularemia the test has a high degree of accuracy and reliability. It has not been used sufficiently to determine its accuracy in brucellosis. It has failed most frequently in the acute severe stages when positive cultures or high agglutinin titers satisfied diagnostic requirements. It is apparently more reliable as an indication of chronic infection. Subsequent testing of patients with positive serum tests and negative agglutination tests has occasionally revealed the reverse situation. There are therefore no laboratory tests without serious imperfections or limitations. Since each single test and various combinations of tests are known to have failed in some proportion when applied in culturally proved cases of undulant fever, the probability of total diagnostic failure can be diminished by the routine application of all tests to all patients suspected of having the disease. Excepting positive cultures, it offers one more item to be weighed as evidence for or against the diagnosis of an infection which frequently requires more than the usual diagnostic methods. The final interpretation must therefore be made only in conjunction with those caused by blood observations which are compatible with those caused by brucellosis. The final decision must always remain with the clinician. At the present time the clinician is probably leaning too heavily on the laboratory for his diagnoses. In no other infection does a correct diagnosis depend more on comprehensive knowledge, extensive experience and sound judgment in relation to epidemiologic, clinical and laboratory observations.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill. 43:153-304 (Feb.) 1940. Partial Index

- Tuberculous Tracheobronchitis: Roentgen Pathology. C. B. Peirce, Montreal, and F. C. Curtzweiler, Ann Arbor, Mich.—p. 153.
Roentgen Aspects of Upper Retro-Esophageal Pulmonary Borders. H. C. Maier, New York.—p. 168.
Diagnostic Problems in Surgery of Upper Urinary Tract. M. Muschat, Philadelphia.—p. 187.
Philadelpha and Congenital Atresia of External Auditory Canal: Demonstration of External Auditory Canal by Means of Tomography. J. D. Camp and E. P. Allen, Rochester, Minn.—p. 201.
*Roentgenologic and Pathologic Considerations of Ewing's Tumor of Bone. J. M. Neely and F. T. Rogers, Ann Arbor, Mich.—p. 204.
*Quiescent Interval and Bone Metastases in Lymphosarcoma. C. Moore and G. L. Weller Jr., Washington, D. C.—p. 211.
Intracranial Complications Following Irradiation for Carcinoma of Scalp. E. P. Pendergrass, P. J. Hodes and R. A. Groff, Philadelphia.—p. 214.
Weak Radium Needle Technic in Carcinoma of Cheek. C. L. Martin, Dallas, Texas.—p. 226.
*Vitamin B₁ in Irradiation Sickness: Preliminary Report. Allison E. Imler and H. Wammock, Philadelphia.—p. 243.
Effect of Roentgen Rays on Bacteriophage: Studies in Bacterial Metabolism. A. I. Kendall and Charlotte Anne Colwell, Chicago.—p. 262.
Biology of Cancer Cell. S. P. Reimann, Philadelphia.—p. 275.

Ewing's Tumor.—Neely and Rogers state that Ewing's tumor represents an arbitrary subdivision of malignant bone neoplasms. Histopathologically it cannot be considered a neoplastic entity. X-ray signs of Ewing's tumor are not unequivocally characteristic. They result from destructive and reparative processes in osseous tissue any of which may be seen in osteogenic sarcoma, metastatic tumor or non-neoplastic lesions. Correlation of clinical, roentgenologic and histopathologic data is necessary to establish the correct diagnosis and proper classification of primary bone tumors. Biopsy should be done as early as possible in any osseous lesion when a primary neoplasm is suspected. Roentgenograms of a classic example of Ewing's tumor usually show the lesion located in the diaphysis or metaphysis of long bones. The patient is generally less than 25 years of age, and pain, swelling, low grade fever and increased cytolysis are common clinical observations. X-ray changes in early tumor development show slight thickening and periosteal reaction, showing lamination parallel to the long axis of bone, density of bone cortex. Later mottled rarefaction and peristosteal reaction, showing lamination parallel to the long axis of bone, may occur. In still later stages there may be swelling of the parts, more destruction of bone and rarely infiltration of epiphysis. The only alteration found in the marrow cavity is irregularity and narrowing of the tumor is often encountered. In fracture rarely occurs. The tumor is extremely radiosensitive. Atypical variations of Ewing's tumor are often encountered. In bone sarcomas which are clinically and roentgenologically typical of Ewing's tumor the histopathology may differ widely from that usually considered characteristic. A case is cited which supports the contention of Melnick that the cell of origin in

Ewing's tumor is the undifferentiated mesenchymal cell, which in postnatal life is found about small blood vessels and capillaries. In accordance with this conception a typical Ewing's tumor is an undifferentiated round cell sarcoma composed of cells not yet differentiated sufficiently to form reticulum. In atypical neoplasms in which tumor cells may be slightly more differentiated they may assume morphologic and physiologic properties of the fibroblast or fibrocyte, become spindle shaped, produce reticulum and, with still more cellular differentiation, possibly form bone. Differentiation may also proceed along another line producing reticulo-endothelium and myelocytic elements and may resemble the microscopic picture found in lymphoblastoma. The cell of origin, therefore, in Ewing's tumor, fibrosarcoma, osteogenic sarcoma and lymphoblastoma is the same and histopathologic classification depends on the line and extent of differentiation of tumor cells. The division of the clinical entities becomes arbitrary and must be based on clinical, roentgenologic and histopathologic criteria.

Bone Metastases in Lymphosarcoma.—Moore and Weller report a case of lymphosarcoma of the round cell type in which a period of four years elapsed between the appearance of the tumor and the quiescent interval. During this time the patient's symptoms were not sufficient to necessitate communicating with his physician, who had previously made a diagnosis of lymphosarcoma from biopsy. Numerous discrete nodules in each submaxillary space and in both carotid chains and small but palpable glands in both axillae and both groins were present. Biopsy of two inguinal lymph nodes showed an overgrowth of small round cells with partial destruction of the normal architecture. Following roentgen treatment the patient remained well for four years. In the literature the "simple lymphomata," "lymphadenomata" or "hyperplastic lymphadenitis" cases are associated with long clinical courses. In none of these cases was there present metastasis to bones, while conversely in none of Craver and Copeland's cases with bone metastasis was the lymphosarcoma of the round cell type. The microscopic appearance of the lymph nodes in the authors' case, similar at the beginning and the end of the disease, is that of a supposedly benign lymphatic tumor. Necropsy was not permitted. Its metastasis to bone, rib, previously reported as occurring only in the reticulum cell type of lymphoma, is therefore unusual. The metastatic lesion in the rib was predominantly osteolytic in type. Attention to the rib metastasis was attracted by local pain. It seems unusual that the rib metastasis became evident soon after an excellent response to roentgen treatment had been obtained on the part of the mediastinal lymph nodes. According to the frequency of occurrence, metastases of lymphosarcoma to ribs are rare. Craver and Copeland state that osseous involvement, particularly of the vertebrae, occurs chiefly through extension. It is probable that the rib in the reported case was involved in this fashion.

Vitamin B₁ for Irradiation Sickness.—Imler and Wammock cite the results of oral or parenteral synthetic vitamin B₁ (thiamin chloride) therapy for the control of severe symptoms of radiation sickness in twenty-one cases. They find that daily injections of 3,000 international units will, in the majority of cases, give rapid and complete relief. Infrequently a recurrence of symptoms requires increase in the dosage. One patient receiving roentgen therapy to the left side of the neck required a temporary increase to 4,500 international units daily by hypodermic injection to control the recurrent nausea and another required 10,000 to eliminate nausea and vomiting. The results obtained with the hypodermic administration are definitely superior to those following the peroral use. The treatment of outpatients presents a problem in that radiation sickness cannot be satisfactorily relieved by the oral administration of large doses of vitamin B₁. It is difficult for these patients to retain their confidence and cooperation, with the result that they fail to continue the medication as prescribed and occasionally refuse to follow the course of radiation therapy. This undesirable factor can be overcome by requiring the patient to return for daily injections of vitamin B₁. Smaller daily doses are more effective than are massive doses given on alternate days. Daily or twice daily estimations of the vitamin B₁ content in the blood serum, beginning two days before radiation therapy is started, might indicate a possible direct relationship between the actual level of vitamin B₁ and the onset of radiation sickness.

Annals of Internal Medicine, Lancaster, Pa. 13:1285-1566 (Feb.) 1940

- Chemical Changes in Blood of Patients with Pyloric Obstruction. P. H. Noth and D. L. Wilbur, Rochester, Minn.—p. 1285.
Influence of Intravenous Glucose Injections on Abnormal Erythrocyte Sedimentation Speed in Relation to Activity of Infection. S. S. Lichtman, New York.—p. 1297.
Arsphenamine Poisoning: Report of Four Cases. G. C. Parker and O. C. Perkins, Brooklyn.—p. 1306.
Arthritis: A Neglected Disease. R. G. Snyder, New York.—p. 1317.
*Oil Aspiration Pneumonia and Pneumolipoidosis. P. G. C. Bishop, New York.—p. 1327.
*Diagnosis of Polycythemia. W. Dameshek and H. H. Henstell, Boston.—p. 1360.
Some Aspects of Psychoneuroses. Annette C. Washburne, Madison, Wis.—p. 1388.
Lupus Erythematosus Disseminatus. J. J. Bunim, New York.—p. 1399.
Respiratory and Circulatory System in Females with Ovarian Dysfunction. D. Scherf, New York.—p. 1414.
*Trichiniasis: Clinical Considerations. R. E. Kaufman, New York.—p. 1431.
Diffuse Primary Tuberculous Enterocolitis: Report of Two Cases. H. L. Bockus, H. Tumen and K. Kornbloom, Philadelphia.—p. 1461.
Chemical Specificity in Growth and Development. F. S. Hammett and S. P. Reimann, Philadelphia.—p. 1483.

Oil Aspiration Pneumonia and Pneumolipoidosis.—Bishop prefers the term "oil aspiration pneumonia" when the offending agent is a form of mineral oil and the term "pneumolipoidosis" when the offending agent is a true lipid. The latter term is likewise suitable for the few cases in which there is no pneumonia due to bacterial infection and in which the lipoidosis may be of endogenous nature. The literature reveals 136 cases the majority of which were diagnosed at necropsy. The cases were reported from 1925 to 1938. Diagnosis during life is not dependent on one or several distinctive diagnostic features but may be arrived at in the presence of a history of the use of an oil or lipid agent or when symptoms or conditions favoring aspiration, especially when lipoids or food may be the offending agent, are present. The symptoms are mainly those of associated diseases or disorders of the respiratory tract and other infectious diseases, central nervous system disorders, impaired general condition and feeding or swallowing difficulties. Physical examination reveals no specific signs. There is usually some degree of nutritional disturbance. Rapid respirations are frequently recorded. Fever, if present, is usually of low grade and the chest signs are those of the associated respiratory infection. The roentgenogram is of the greatest diagnostic value but may often be difficult to interpret, owing to other pulmonary diseases. A lack of change over a long period in serial roentgenograms is an important point. The sputum should always be examined for free oil droplets or large phagocytic monocytes containing fat or oil. Interval vital capacity estimations are recommended. In addition to gross and microscopic study, final diagnostic proof is obtained by identifying the offending agent by chemical analysis of the oil or lipid in the involved pulmonary tissue. Scrapings from the cut surface of lungs in all cases of pulmonary examinations should be streaked and stained for fat at the time of necropsy. If this test is positive, qualitative and quantitative chemical analysis for fats should be done. The best therapy is prevention and then the treatment of the associated disease or disorder on which prognosis is dependent. In uncomplicated cases the prognosis is good. As for prophylaxis, common sense should be practiced in the use and administration of oil and lipoids. No harm is done provided the patient is in good general condition and if self administration is carried out under correct instruction or medical supervision. When an agent is prescribed, it should not be administered before retiring; if the patient is confined to bed utmost caution should be exercised in the amount, frequency and duration of administration; substitution therapy should be used and oil and lipid agents abolished when the reflexes are subdued or absent. Iodized oil for bronchography should not be employed in suspected cases of pneumolipoidosis. In infants with conditions favoring aspiration, it is best to use fat free formulas.

Diagnosis of Polycythemia.—Dameshek and Henstell state that a correct diagnosis of polycythemia can usually be made from the history and the physical examination. Careful consideration of the laboratory observations leads to criteria for the establishment of a definite diagnosis and for differentiation of the doubtful from the true cases. The symptoms are in all probability due to an overloading of the circulation with resul-

tant sensations referable to the head, the cardiovascular system, the gastrointestinal tract and the extremities. In some cases a multiplicity of symptoms is present with the result that neuros-thenia may be diagnosed. The authors place emphasis on one bodily system or another. The authors report cases which show great differences in symptomatology. Certain symptoms, signs and laboratory tests when considered together make the diagnosis of "primary" or "true" polycythemia. The authors rely on the following as being of diagnostic value: headache, vertigo, visual disturbances, colored scotomas, paresthesias, vascular disturbances of the extremities, profuse hemorrhages after minor trauma, venous and arterial thrombosis and a multiplicity of symptoms. The diagnostic physical signs are plethoric appearance of the face and conjunctivae, dilated retinal vessels, thickly coated and fissured tongue, splenomegaly, hepatomegaly, and red hands and feet. The diagnostic laboratory tests are elevated erythrocyte count (above 6 million per cubic millimeter), hemoglobin percentage, leukocyte count, polymorphonuclear percentage, platelet count, hematocrit value and blood volume, distended capillaries, sternal bone marrow biopsy (red cell hyperplasia and megakaryocytic hyperplasia) and elevated basal metabolic rate. Not every symptom or sign is present in every case. A plethoric appearance, splenomegaly or hepatomegaly, a definitely elevated erythrocyte count, an elevated platelet count and hematocrit value must be present before the diagnosis of primary polycythemia may be made. In a doubtful case, blood volume estimation and capillary microscopy may be helpful. Polycythemia vera is probably more common than is ordinarily suspected, particularly among Jews. Too often the obvious diagnosis is made and the possibility that "hypertension," "menopause" or "migraine" might in reality not be the ultimate and more serious organic expression of some more general disorder is disregarded.

Trichiniasis.—Kaufman points out that occasionally there may be symptoms of a mild gastrointestinal upset, with nausea, vomiting and abdominal pain immediately after the ingestion of trichinous meat. The period of invasion begins from twenty-four to seventy-two hours later. Anorexia, nausea, vomiting, diarrhea and generalized abdominal pain are often present. These symptoms may be severe enough to resemble cholera. The incubation period is from two to twenty-seven days. The period of dissemination begins from six to ten days after eating the meat. The larvae migrate from the intestinal mucosa by way of the lymph and blood streams. The site of predilection and the final resting place for most of the larvae is the skeletal musculature, where they grow for about two weeks, when they begin to coil up and encyst. Fever from 100 to 106 F. is almost always present during the acute stage of the disease. The fever curve with the relative bradycardia produces a chart similar to that seen in typhoid. Fever, sweating, chills, itching, hypotension and weakness are probably due mainly to toxemia from the presence of the larvae and from muscle destruction. Dehydration, acidotic breathing, tetany and loss of weight are attributable to vomiting and diarrhea. The clinical picture depends on the tissues and organs invaded. The presence of the trichinae in the intestinal lumen and mucosa is responsible for the gastrointestinal symptoms which are usually present during the period of invasion; i. e., from the second to the eighth day after eating the infected meat. Invasion of the muscles of the trunk or extremities is manifested by edema, pain and tenderness. The pain, if located in the abdominal wall or back, may be severe enough to simulate renal, biliary or intestinal colic. There may be weakness of the muscle or even paralysis, suggestive of poliomyelitis. Involvement of the pharynx and larynx. The respiratory tract is usually serious, as life may be threatened by asphyxia from edema of the pharynx and larynx. The muscles of mastication are sometimes the seat of edema, occasionally simulating mumps. Cough, sputum (usually mucopurulent), dyspnea, cyanosis and signs of pulmonary congestion or consolidation, alone or together, may be present. Bronchopneumonia or lobar pneumonia may be simulated or actually present. Pleurisy and pleural effusions of central nervous system and peripheral nerve involvement are fairly common and may be severe. Diplopia or paralysis of the eye muscles is not rare. Reflex changes are common. Signs of meningeal irritation may be present. General signs of cerebral involvement may be

present. Encephalitis due to the presence of the embryos in the brain has been reported. There may be dyspnea, orthopnea, cyanosis, palpitation and tachycardia. Scarlatiniform rash, erythema and subungual splinter hemorrhages have been frequently observed in some series and rarely in others. The kidneys occasionally show involvement, as manifested by albumin and casts in the urine. At necropsy fatty changes have been shown by found in the retina. Otitis media has occurred as a complication of trichiniasis. Although the muscles of the tongue are sometimes affected, the sensation of taste does not seem to become impaired. The mesenteric lymph nodes show enlargement, an accumulation of eosinophils and occasionally larvae, especially in the early stages of the disease. The tracheobronchial nodes are similarly affected, although to a lesser degree. Larvae have been found in excised mammary gland tissue, human milk and the placenta.

Archives of Dermatology and Syphilology, Chicago 41:451-638 (March) 1940

- Pyoderma Faciale.** P. A. O'Leary and R. R. Kierland, Rochester, Minn.—p. 451.
- Pinta in Cuba: Special Clinical Features of Cuban Cases and Discovery of Spirochete in Active Lesions and in Lymph Glands.** B. Sáenz, in collaboration with J. Grau Triana and J. A. Armenteros, Habana, Cuba.—p. 463.
- Recklinghausen's Disease: Its Elusive Manifestations and Internal Relations.** O. L. Levin and H. T. Behrman, New York.—p. 480.
- Occupational Dermatitis Due to Mint: Report of Two Cases.** W. M. Sams, Miami, Fla.—p. 503.
- Blood Iodine of Patients with Acne Vulgaris.** E. F. Traub and R. Emmet, New York.—p. 506.
- Fixed Eruption with Extracutaneous Manifestation Due to Mapharsen: Report of Case.** H. V. Mendelsohn, New York.—p. 509.
- Erythema Annulare Rheumaticum (Lehndorff-Leiner): Report of Case.** E. Urbach and A. Bleier, Philadelphia.—p. 515.
- Tattooing with Mercury Sulfide.** R. Turell, A. M. Buda and A. W. M. Marino, Brooklyn.—p. 521.
- *Treatment of Pruritus Ani by Tattooing with Mercury Sulfide.** R. Turell, A. M. Buda and A. W. M. Marino, Brooklyn.—p. 521.
- Natural Color Photography of Skin: New Apparatus for Proper Illumination.** A. E. Schiller, Detroit.—p. 527.
- Effective Treatment of Varicose Ulcers of Leg.** L. Isaak, New York.—p. 530.
- *Disseminated Lupus Erythematosus Treated by Sulfanilamide: Report of Four Cases.** A. L. Weiner, Cincinnati.—p. 534.
- Cutaneous Metastatic Carcinoma Originating from Osteomyelitic Cavities.** C. D. Stewart, Corpus Christi, Texas; M. E. Obermayer and H. Woolhandler, Chicago.—p. 545.
- *Treatment of Ragweed Dermatitis: Report of Seven Cases of Successful Treatment with Absolute Alcohol Extract of Ragweed Leaves.** J. A. Clarke Jr., Philadelphia, and J. F. Riechardt Jr., Mahanoy City, Pa.—p. 551.
- Lymphogranuloma Venereum Affecting Simultaneously Cervical and Inguinal Lymphatic Glands: Report of Case.** M. J. Costello and J. A. Cohen, New York.—p. 557.
- Osteomatosus Cutis.** C. Dietrich, Tacoma, Wash.—p. 562.

Tattooing with Mercury Sulfide for Pruritus Ani.—Turell and associates tattooed with mercury sulfide the perianal circumference in twenty-two cases of pruritus ani refractory to other treatment. The results obtained have been so satisfactory as to justify its continuation. A prolonged follow-up period will be necessary for the final evaluation of the method. Two private patients have been followed for more than nine months and the clinic patients for seven months. In one case there was a recurrence of the pruritus for four days fourteen weeks after the tattooing, but this disappeared spontaneously. The perineum and perianal region of this patient, an automobile mechanic, was constantly irritated by oil-laden clothes. However, the freedom from pruritus even for a short time was considered distinctly worth while by the patient. Another patient noticed a localized sensation two weeks after the left half of the perianal region was tattooed. A sensation in the perianal skin, which none of the patients described precisely but which was definitely unlike the character of the original pruritus, occurred in four other cases, in most of them within two weeks after completion of treatment. The sensation disappeared completely about a month after its appearance in one case. The modus operandi of this form of treatment is unknown. The mercury may have either an antiseptic action or a chemical effect on the cutaneous nerve supply. It is possible that the combined chemical and mechanical effects are essential. To determine whether the drug was necessary or not, four patients were treated with the tattoo machine but without the use of mercury sulfide. Relief from pruritus was obtained for a short time. In all cases the recur-

rent pruritus disappeared after the tattooing was done with mercury sulfide. It is also possible that the psychic element in some cases is as important as the physical and chemical aspects.

Sulfanilamide for Disseminated Lupus Erythematosus.—Weiner states that disseminated lupus erythematosus was arrested in two cases in which sulfanilamide was used. One of the patients has been followed for nearly two years and the other for several months. No effect was obtained in two other cases of disseminated lupus erythematosus in the terminal stages of the disease. Necropsy in these instances revealed changes in the small blood vessels of the kidneys and other viscera of a type recently described as characteristic of disseminated lupus erythematosus and related clinical syndromes. The usual precautions of sulfanilamide therapy should be taken in the treatment of lupus erythematosus, emphatic instructions to avoid sunlight being given. In view of the grave prognosis and unknown cause of disseminated lupus erythematosus, treatment with sulfanilamide or related compounds should be considered a practical measure.

Treatment of Ragweed Dermatitis.—Clarke and Ricchiuti used absolute alcohol extracts with success in the diagnosis and treatment of ragweed dermatitis in seven cases. Prophylactic treatments were given in three cases. In all there was a decided but not complete protection. In one case there was a complete absence of symptoms the following year without any treatment, phylactic or prophylactic. Seven phylactic or coseasonal treatments were given to six persons, and all six showed decided relief. Four of the seven persons gave definitely positive intradermal reactions to aqueous extracts of ragweed pollen. In these cases reactions could be reproduced by passive transfer (Prausnitz-Küstner technic). One person had indefinite nasal symptoms during the hay fever season, and two had asthma throughout the year. The authors believe that their success, in contrast to the failures of others, is due to the antigen entering the body in a suspension. In this way it is brought into immediate contact with a large number of body cells. When injected in oil it remains in solution and comes into contact with body cells much more slowly.

Archives of Otolaryngology, Chicago

31:391-560 (March) 1940

- Changes in Internal Ear Due to Increased Endocranial Pressure: Histologic Basis of Congestive Inner Ear. J. Fischer, Boston.—p. 391.
- Tomography and Cancer of Larynx. F. E. Leborgne, Montevideo, Uruguay.—p. 419.
- Radical Mastoidectomy: Its Effect on Hearing. J. H. Maxwell and H. J. Richter, Ann Arbor, Mich.—p. 426.
- Value of Encephalography in Diagnosis of Otogenic Intracranial Complications. R. Dinolt, Chicago.—p. 431.
- Congenital Fistula of Neck Communicating with Middle Ear. J. G. Druss and B. Allen, New York.—p. 437.
- Is Medical Phonetics an Essential Part of Otorhinolaryngology? P. J. Moses, San Francisco.—p. 444.
- Otosclerosis: Postauricular Approach in Operative Treatment. H. M. Goodyear, Cincinnati.—p. 451.
- *Probable Pathogenic Streptococci and Staphylococci in Chronic Low Grade Illness: Analysis of Their Frequency in 395 Cases. M. H. Stiles, Philadelphia, and G. H. Chapman, New York.—p. 458.
- The Next Step in Auditory Research. H. G. Kobrak, J. R. Lindsay and H. B. Perlman, Chicago.—p. 467.
- Simple Mastoidectomy: Critical Analysis of 100 Consecutive Cases. E. H. Tomb, Framingham, Mass.—p. 478.
- Ateliosis of Mandibular Arch: Critical Comment on Glossoposis, the Syndrome of Pierre Robin. L. Schwartz, New York.—p. 491.
- Borderline Allergy: Its Relation to Hyperplastic Disease of Respiratory Tract. N. Fox, J. W. Harned and S. Peluse, Chicago.—p. 502.
- Speech Hearing and Speech Interpretation Testing. D. Macfarlan, Philadelphia.—p. 517.

Probable Pathogenic Streptococci and Staphylococci in Chronic Low Grade Illness.—Stiles and Chapman made cultures of material from the nasal and oral cavities of 395 persons with low grade infections in order to determine the incidence of streptococci and staphylococci. Most of the patients complained of more than one disease; 96.3 per cent had clinical evidence of involvement of the nose or nasopharynx, 52.2 per cent had evidence of chronic sinusitis and 44.1 per cent had symptoms referred to as chronic nasopharyngitis by Burbank and sinusitis by Chase. There were thirty-one cases of tonsillitis and seventeen of other types of oral infection. Bronchitis was present in eighty-three cases, colitis or irritability of the colon in sixty-seven, recurrent or chronic gastro-enteritis in eighty-nine, symptoms referable to the biliary tract in eighty-

two, inflammatory conditions of the urinary tract in thirty-eight, rheumatoid arthritis in sixteen and other forms of arthritis in thirty-eight. A group of fifty-two patients who had symptoms which have been called "prodromes to arthritis" were classified as having "rhumatism." At least one of these conditions was present in each case studied. In addition twenty-two patients had asthma, eighteen duodenal ulcer and twenty-two migraine. Only in vitro positive staphylococci and streptococci were considered in tabulating the observations. Of the 395 patients, 98.7 per cent had streptococci in at least one of the cultures, most frequently in the oral cavity. Staphylococci were found in 69.8 per cent of the cases and occurred most frequently in the nose. When the cultures were analyzed on the basis of the clinical condition there was a direct relationship between the severity of symptoms and the proportion of patients with streptococci in cultures from more than one source. There was no constant relationship between the incidence of staphylococci and the clinical severity, although there was a tendency toward a lower incidence among the patients with more severe symptoms and when the frequency of albus and aureus strains were compared a higher proportion of aureus strains, particularly from the nose, were present in cultures from patients with more serious conditions. Patients with sinusitis had a richer flora of streptococci and staphylococci in the nose and throat and a higher incidence of staphylococci but fewer fecal streptococci and staphylococci than did those with nasopharyngitis. Staphylococcus aureus was abundant in the noses and throats of patients with tonsillitis. Those with bronchitis yielded profuse growths of nasal and oral staphylococci. Patients with colitis had a high incidence (58.2 per cent) of fecal streptococci and Staphylococcus aureus (12 per cent). In cases of rheumatoid arthritis the incidence of staphylococci was 56.3 per cent and 50 per cent in the "other" types of arthritis. With "rhumatism" the incidence of fecal streptococci was 38.5 per cent and of oral and nasal strains of Staphylococcus aureus it was respectively 42.3 and 51.9 per cent. In cases of asthma the incidence of streptococci was 54.6 per cent, the proportion of patients with alpha and gamma streptococci in the feces and of those with gamma streptococci in the nose and throat being higher than in any other group.

Archives of Pathology, Chicago

29:303-454 (March) 1940

- Changes in Elasticity of Aorta with Age. J. Krafka Jr., Augusta, Ga.—p. 303.
- Simmonds' Disease (Pituitary Cachexia) in an Aged Man with Dementia Praecox. Myrtelle M. Canavan, Boston.—p. 310.
- Primary Amyloid Disease of Myocardium and Blood Vessels: Report of Case with Death from Myocardial Failure. C. H. Binford, Detroit.—p. 314.
- Wave Mechanics of Smooth Muscle Action: XV. Experimental Multiple Reflections Between Intestinal Ligatures Transforming Traveling into Stationary Micropressure Waves in Smooth Muscle. E. J. Carey, Milwaukee.—p. 321.
- Capillary Rupture with Intimal Hemorrhage in Causation of Cerebral Vascular Lesions. J. C. Paterson, Ottawa, Ont.—p. 345.
- Effects of Prolonged Injections of Bovine Anterior Pituitary Extract on Bone and Cartilage of Guinea Pigs. M. Silberberg and Ruth Silberberg, St. Louis.—p. 355.
- *Malignant Adenomas of Chromophobe Cells of Pituitary Body. O. T. Bailey and E. C. Cutler, Boston.—p. 368.
- Neuronophagia in Human Cerebral Cortex in Senility and in Pathologic Conditions. W. Andrew, Dallas, Texas, and E. S. Cardwell Jr., Augusta, Ga.—p. 400.

Malignant Chromophobe Adenomas of Pituitary Body.—In the eighty-eight cases of chromophobe adenoma of the pituitary body encountered between 1928 and 1936, Bailey and Cutler observed three tumors which appeared different from the others. Because of the unusual clinical histories of the three cases and the invasive properties and distinctive microscopic appearance of the tumors, the three instances are presented separately. The tumors differed clinically from the usual benign chromophobe adenoma in that the symptoms progressed rapidly and extension of the tumor into the skull bones adjacent to the sella turcica, the neighboring brain substance and the nasopharynx was rapid. The early stages of the illness were dominated in the first case by ocular symptoms, in the second by uncinat seizures and in the third by nasal obstruction. The tumor cells were arranged in broad sheets separated from one another by a stroma which was altered in character from that of the normal pars anterior and was in part derived from struc-

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tures at the edge of the tumor, far from the sella turcica. The authors set these tumors apart from the usual chromophobe adenomas. They suggest for them the term "malignant chromophobe adenoma," indicating that they are locally invasive and possess certain histologic characteristics of malignant tumors but do not metastasize either in the cerebrospinal axis or elsewhere. The malignant chromophobe adenoma is difficult to distinguish from chordoma and carcinoma of the sphenoid sinus or of the nasopharynx. The tendency of the malignant chromophobe adenoma to include large blood vessels in the sellar region makes surgical approach perilous. One patient responded most satisfactorily to roentgen therapy following a biopsy. In this case symptoms pointing to involvement of the temporal lobe were controlled. The other two patients, treated surgically, died.

California and Western Medicine, San Francisco

52:103-150 (March) 1940

Summary of Pharmacology of Sulfanilamide and Related Compounds. W. C. Cutting, San Francisco, and W. L. Cover, San Bernardino.—p. 110.
Effective Sulfanilamide Dosage: Value of Quantitative Sulfanilamide Determinations. W. J. Mitchell, Los Angeles; P. M. Hamilton, Alhambra, and A. G. Bower, Glendale.—p. 113.
Acute Suppurative Pericarditis with Initial Leukemoid Blood Picture. M. Wolfson, Monterey, and J. C. Sharp, Salinas.—p. 116.

Connecticut State Medical Journal, Hartford

4:123-184 (March) 1940

Acute Laryngotracheobronchitis. P. B. MacCreedy, New Haven.—p. 123.
Psychiatric Approach to Problems in General Medicine. J. H. Wall, White Plains, N. Y.—p. 127.
Modern Methods in Treatment of Pneumonia. C. S. Keefer, Boston.—p. 131.
Treatment of Pneumonia. L. H. Nahum, New Haven.—p. 135.
The Short Cycloplegia for Refraction. S. J. Beach, Portland, Maine.—p. 140.

Endocrinology, Los Angeles

26:369-564 (March) 1940. Partial Index

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Effects of Testosterone Propionate on Epiphyseal Closure, Sodium and Chloride Balance and on Sperm Counts. E. P. McCullagh and F. J. McGurl, Cleveland.—p. 377.
*Masculinizing and Nonmasculinizing Carcinomas of Cortex of Adrenal Gland: Report of Six Adult Cases. T. H. McGavack, New York.—p. 396.
Age Distribution and Sex Incidence of Hyperthyroidism and Hypertension: Interrelation of These Two Conditions. S. K. Robinson, Chicago.—p. 409.
*Endocrine Aspect of Essential Hypertension and Diabetes Mellitus. J. H. Hutton, J. T. Case, W. L. Culpepper, E. C. Olson and E. E. Madden, Chicago.—p. 418.
Estrogen Metabolism in Cancerous and Noncancerous Women. G. Pincus and M. Graubard, Worcester, Mass.—p. 427.
Alopecia Totalis, with Special Reference to Familial and Endocrine Factors. Juliet E. Thorne, Bakersfield, Calif.—p. 433.
Hexamine Insulin Compound Giving Rapid and Sustained Action. H. M. Feinblatt, E. A. Ferguson and B. Alpert, Brooklyn.—p. 437.
Increased Duration of Insulin Action by Use of Protamine Zinc Steroid Pellet Form. J. Mark and G. R. Biskind, Baltimore.—p. 444.
Effect of Testosterone on Monkey Uterus and Administration of Steroid Hormones in Form of Deanesly-Parkes Pellets. C. G. Hartman, Baltimore.—p. 449.
Recovery of Testes After Androgen Induced Inhibition. R. R. Greene and M. W. Burrill, Chicago.—p. 516.
Pharmacodynamic Effects of Testosterone Propionate on Tubal Contractions (Oviduct of Rabbit) Determined by Carbon Dioxide Insufflation. I. C. Rubin and A. M. Davids, New York.—p. 523.

Masculinizing and Nonmasculinizing Adrenal Carcinomas.—McGavack reports three cases of cancer of the cortex of the adrenal gland with masculinization and three without secondary sex changes. In four the diagnosis was confirmed at necropsy and in two by operation and biopsy. In three women the adrenal neoplasm was associated with adrenogenital syndrome and late in the course of their disease evidence of chronic adrenal insufficiency. The clinical picture of the third, aged 34, resembled that of Cushing's "basophilism." An abdominal mass was the only common feature of the persons without virilism, of whom two were women aged 70 and 37. Prior to death Addison's disease developed in one of the women; the other maintained a state of low grade sepsis for at least five months before death. The abdominal mass and the cachexia were the only features of the disease in the man. Estimations of estrogen, gonadotropic factor of the pituitary and "androgenic or androgenic-like materials" in the

urine of eighteen patients are recorded. High estrogen values were obtained only in the urines from patients with carcinoma of the adrenal gland, and increased bitterling responses in hyperplasia of the adrenal cortex. The relative frequency of adenomas and carcinomas of the cortex of the adrenal gland is discussed, and the large number of possible syndromes which could be clinically associated with the latter is suggested.

Endocrine Aspect of Essential Hypertension and Diabetes Mellitus.—Hutton and his associates employed the inhibitory or regulatory effects of x-rays on the endocrine functions of the pituitary and the adrenals in the treatment of cases of diabetes and hypertension; 120 kilovolts, 3 milliamperes, 2 mm. of aluminum filter, 50 cm. skin target distance and 50 roentgens at the surface of each port of entry were found most effective. The pituitary region was irradiated from both sides through a port measuring 10 by 10 cm. The adrenal areas were treated through a common port 15 by 15 cm. The treatment has been repeated at six weekly intervals when needed. After a rest of six weeks the series may be repeated. If symptomatic relief or a marked fall in blood pressure occurs after the first or any subsequent treatment, no further exposure is given until there is a return of symptoms or a rise in blood pressure. Failure is most often due to too large doses or to treatments given at too frequent intervals or too close to the menstrual period. Treatment should not be given within ten days of the menstrual period. Of 354 patients with hypertension, 268 received three or more treatments and of these 60.4 per cent or 186 were improved; twenty-nine relapsed, 157 remained improved and eighty-two were not improved. Of the entire series fifty-nine received insufficient treatment and twenty-seven could not be traced. Improvement meant that in addition to symptomatic relief the systolic pressure was reduced at least 30 points and the diastolic 20 points. Relief of symptoms has been much more striking than reduction in blood pressure and has at times occurred when the blood pressure has been head-but little. The symptoms most often relieved have been headache, vertigo, precordial distress, irritability, pains in the legs, blurring of vision and menopausal disturbances. Tinnitus has been less regularly relieved. Certain changes following treatment were easily recognized and more positively evaluated than the subjective sensations described by patients. These were reduction in blood pressure, increase in renal function as measured by the phenolsulfonphthalein test, improvement of retinal lesions, reduction of the basal metabolism rate and improvement in the condition of the skin. The patients who received irradiation but obtained no benefit seem to become more susceptible to some of the vasodilators, particularly the betes of thirteen improved, only the hypertension and diabetes of four, one improved but later relapsed, two remained unimproved, six did not have sufficient treatment and one could not be traced. By improved the authors mean that the diabetic syndrome has greatly improved or has entirely disappeared and that the symptoms and blood pressure were influenced as in the patients with hypertension only.

Georgia Medical Association Journal, Atlanta

29:45-88 (Feb.) 1940

State Aid Cancer Clinics: Methods and Records. J. L. Campbell, Atlanta.—p. 45.
State Aid in Cancer Control in Georgia. C. C. Harrold, Macon.—p. 48.
Treatment of Skin Cancer in Ambulatory Patients: Report and Review of 200 Cases. Howard Hailey and Hugh Hailey, Atlanta.—p. 50.
Choice of Treatment of Cancer of Breast. E. Callaway, LaGrange.—p. 53.
Cancer of Cervix. A. D. Little and J. J. Collins, Thomasville.—p. 57.
Malignancies Related to Venereal Disease: Development of Carcinoma Secondary to Venereal Lymphogranuloma and Granuloma, and Carcinoma. E. S. Cardwell Jr. and E. R. Pund, Augusta.—p. 60.
Methods and Value of Biopsies in Malignant Tumors. J. E. Scarborough, Emory University.—p. 63.
Some Common Endocrine Disorders in the Female, with Special Reference to Treatment with Male Sex Hormone. R. B. Greenblatt and R. Torpin, Augusta.—p. 68.
Pneumococcal Meningitis Treated with Sulfapyridine and Antipneumococcus Type I Antiserum: Report of Case. E. C. Herman, LaGrange.—p. 72.
Chronic Superficial Gastritis. C. F. Barnett, Atlanta.—p. 73.
Palliative Procedures for Inoperable Malignant Lesions of Colon. W. D. Wilson, Savannah.—p. 77.

Iowa State Medical Society Journal, Des Moines

30:45-94 (Feb.) 1940

- *Transient Antidiabetogenic Effect of Synthetic Adrenal Cortical Hormone: Cortate; Preliminary Observations. E. B. Winnett, J. W. Caldwell and J. E. Kahler, Des Moines.—p. 45.
- Review of Experiences with Pharmacologic Shock Therapy. R. H. Young, Omaha.—p. 48.
- Peanesthetic Medication. S. C. Cullen, Iowa City.—p. 51.
- Coronary Thrombosis. J. S. McQuiston, Cedar Rapids.—p. 54.
- Phlebitis and Thrombophlebitis of Lateral Sinus. G. F. Harkness, Davenport.—p. 59.
- Tularemic Pneumonia: Case Report. I. Ziferstein, Mount Pleasant.—p. 65.

Antidiabetogenic Effect of Adrenal Cortex Extract.—

Winnett and his associates cite two cases in which a synthetic adrenal cortex extract, cortate, has had an alleviating effect on diabetes. A marked hypoglycemia resulted from the administration of desoxycorticosterone acetate, necessitating reduction in the amount of insulin tolerated. The effect was rapid but transient with the amount of adrenal cortex extract given. Further experimentation will open new avenues for a clearer appreciation of the possible etiology of diabetes.

Journal of Clinical Investigation, New York

19:267-436 (March) 1940

- Studies on Neoplasms with Aid of Radioactive Phosphorus: I. Total Phosphorus Metabolism of Normal and Leukemic Mice. J. H. Lawrence, L. W. Tuttle, K. G. Scott and C. L. Connor, Berkeley, Calif.—p. 267.
- Comparison of Procedures for Increasing Blood Flow to Limbs Using an Improved Optical Plethysmograph. G. W. Wright and K. Phelps, Cleveland.—p. 273.
- Determination of Glomerular Filtration by Endogenous Creatinine Clearance. K. Steinitz and H. Türkand, Istanbul, Turkey.—p. 285.
- Studies on Conditions of Glucose Excretion in Man. K. Steinitz, Istanbul, Turkey.—p. 299.
- *Antibody Formation in Cases of Lobar Pneumonia Treated with Sulfapyridine. Y. Kneeland Jr. and Barbara Mulliken, New York.—p. 307.
- Electrophoretic Analysis of Plasma and Urinary Proteins. J. A. Luetscher Jr., Boston.—p. 313.
- Effect of Unilateral Spontaneous Pneumothorax on Circulation in Man. H. J. Stewart and R. L. Bailey Jr., New York.—p. 321.
- Calcium and Phosphorus Metabolism in Osteomalacia: IX. Metabolic Behavior of Infants Fed on Breast Milk from Mothers Showing Various States of Vitamin D Nutrition. S. H. Liu, H. I. Chu, C. C. Su, T. F. Yu and T. Y. Cheng, Peiping, China.—p. 327.
- Id.: X. Further Studies on Vitamin D Action: Early Signs of Depletion and Effect of Minimal Doses. H. I. Chu, S. H. Liu, T. F. Yu, H. C. Hsu, T. Y. Cheng and H. C. Chao, Peiping, China.—p. 349.
- *Observations on Plasma Prothrombin and Effects of Vitamin K in Patients with Liver or Biliary Tract Disease. F. J. Pohle and J. K. Stewart, Madison, Wis.—p. 365.
- Observations on Serum Cholesterol in Acute Infections as Recorded During and After Pneumonia. A. Steiner and K. B. Turner, New York.—p. 373.
- Four Recent Influenza Epidemics: Experimental Study. F. L. Horsfall Jr., R. G. Hahn and E. R. Rickard, New York.—p. 379.
- Studies of Rheumatic Disease: III. Familial Association and Aggregation in Rheumatic Disease. R. L. Gauld and Frances E. M. Read, Baltimore.—p. 393.
- Urinary Excretion of Thiamin in Clinical Cases and Value of Such Analyses in Diagnosis of Thiamin Deficiency. W. D. Robinson, D. Melnick and H. Field Jr., Ann Arbor, Mich.—p. 399.
- Glycine Tolerance Test in Sprue and Pernicious Anemia. L. A. Erf and C. P. Rhoads, New York.—p. 409.
- Study of Sulfur Metabolism and Effect of Sulfur Administration in Chronic Arthritis. R. H. Freyberg, W. D. Block and M. F. Fromer, Ann Arbor, Mich.—p. 423.

Antibody Formation in Lobar Pneumonia Treated with Sulfapyridine.—

Kneeland and Mulliken studied nineteen cases of lobar pneumonia treated with sulfapyridine for the appearance of type specific antibodies. One hundred and twenty-seven samples of serum were tested by means of the precipitin reaction with specific polysaccharide. Only four cases showed an excess of type specific antibodies in the blood, and in these four the antibodies did not appear at the time of or immediately after the "crisis" induced by sulfapyridine. Antibodies in these four cases were first detectable after a week of normal temperature. The temperature fell to normal, following sulfapyridine therapy, within twenty-four hours in nine cases, within forty-eight hours in six and within seventy-two in four. The fall to normal in cases in which antibodies developed occurred in twenty-four hours in two cases, and in forty-eight and seventy-two hours respectively in the others. The duration of disease before treatment with sulfapyridine was begun was no greater in each type of case. The observations indicate that in nearly 80 per cent of the cases recovery took place without the appearance of an excess of type specific antibodies. As heretofore an excess of antibodies has been regarded as an essential part of the mechanism

of spontaneous recovery from pneumonia, it must be concluded that sulfapyridine has supplanted, at least to some degree, this part of the immune mechanism. However, there is no evidence that antibody production ceases to occur in the presence of sulfapyridine; on the contrary, it is highly probable that it occurs at least to some extent. This is suggested by the cases in which antibodies appeared later in excess, implying that production has been going on at a slower rate, probably because the stimulus to antibody formation is lessened through the action of the drug on the invading organism. This abnormally low rate of antibody formation may explain the well known clinical observation that if treatment with sulfapyridine is stopped too soon a recrudescence of the pneumonia may take place. These observations do not settle the question as to whether therapeutic antiserum should or should not be given along with the drug; they merely indicate that demonstrable antibodies are not essential to recovery.

Plasma Prothrombin and Vitamin K in Hepatic or Biliary Tract Disease.—Pohle and Stewart present a study of vitamin K therapy in 136 consecutive cases of hepatic or biliary tract disease. In 47 per cent of the cases the plasma prothrombin was below normal. Intrinsic hepatic disease was a frequent cause of the prothrombin deficiency. A marked reduction of the plasma prothrombin was present in each of the ten cases in which abnormal bleeding occurred. The data suggest that hemorrhage should be anticipated when the prothrombin concentration is 30 per cent or lower. The effect on prothrombin of the oral administration of vitamin K and bile salts to forty-six jaundiced patients with a reduction in this coagulation factor was not uniform. Twenty-eight patients showed a satisfactory increase in prothrombin while eighteen showed no improvement. The failure of vitamin K and bile salts to produce an increase in prothrombin in certain cases of jaundice is often due to the presence of extensive hepatic damage. The decrease in prothrombin, not uncommon after surgical intervention in jaundiced patients, is especially likely to occur if hepatic damage is present. These studies suggest that, in the absence of obstructive jaundice, external biliary fistula or an abnormal intestinal absorptive surface, the plasma prothrombin concentration serves as a measure of hepatic function.

Journal-Lancet, Minneapolis

60:95-140 (March) 1940

- Acute Infections of Upper Respiratory Tract. H. L. Williams, Rochester, Minn.—p. 95.
- Practical Cooperation Between Practicing Physician and Diagnostic Laboratory. J. C. Ohlmacher, Vermillion, S. D.—p. 98.
- Diagnosis and Management of Surgical Gallbladder: Review of 484 Cases. E. M. Jones, St. Paul.—p. 102.
- Analysis of Some Factors in Personality Influencing Health. H. B. Hannah, Minneapolis.—p. 105.
- Efficiency of Intermediate Dilution of Tuberculin (P. P. D.) in Determining Tuberculosis Infection Rate. M. W. Husband, Manhattan, Kan.; G. M. Tice, Kansas City, Kan., and D. T. Loy, Manhattan, Kan.—p. 108.
- Some Painful Conditions About Head and Face. G. R. Kamman, St. Paul.—p. 111.
- Diagnosis and Treatment of Endometriosis. E. Allen, Chicago.—p. 114.
- Subcutaneous Liver Extract Therapy for Acne Vulgaris: Studies with Distillation and Evaporation. W. Marshall, Appleton, Wis.—p. 117.
- Pneumoperitoneum for Treatment of Pulmonary Tuberculosis. A. L. Banyai, Wauwatosa, Wis.—p. 120.
- Accidental Gunshot Wound of Head with Recovery: Case Report. L. R. Cole and E. R. Hodgson, Madison, Wis.—p. 124.
- *Epilepsy Among College Students. L. E. Himler and T. Raphael, Ann Arbor, Mich.—p. 125.

Epilepsy Among College Students.—During a period of nine years with a total enrolment of 118,532 students, seventy came to the attention of Himler and Raphael because of petit or grand mal seizures. Particular effort was made to exclude all cases of simple syncope, hysterical reactions or other unconscious states not possessing the characteristics of epileptic attacks. Of the seventy epileptic students (fifty men and twenty women) forty-four had attacks before coming to the university and twenty-six had their first seizures subsequent to entrance. Grand mal attacks, with or without accompanying petit mal seizures, occurred in sixty-four and petit mal or narcoleptic attacks alone in six cases. The incidence (0.06 per cent) as determined for the student body is not directly comparable to the general incidence of epilepsy but represents less than one eighth of that (0.5 per cent) estimated by Lennox for the adult population at large. Forty-six of the students came to the

Journal of Nervous and Mental Disease, New York
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Journal of Nervous and Mental Disease 91:277-416 (March) 1940

The Goodenough Test (Drawing a Man) in Chronic Encephalitis in Children. Lauretta Bender, New York.—p. 277.

Suicide Among Hospitalized Drug Addicts. M. J. Pescor, Fort Worth, Texas.—p. 287.

The Great Delusion. J. Favill, Chicago.—p. 306.

Retrospective Study of Case Involving Homicide. T. K. Rathmell and K. M. Corrin, Norristown, Pa.—p. 316.

Shall We Differentiate Between Schizophrenia and Dementia Praecox? L. W. Darrab, Northampton, Mass.—p. 323.

Problems of Shock Treatment in Schizophrenics. F. Kant, P. L. Phillips and R. M. Stolzheise, Hartford, Conn.—p. 329.

Psychiatry & Exper. Therap., Baltimore 1:1-10 (March) 1940

Journal of Pharmacology & Exper. Therap., Baltimore
68:301-418 (March) 1940

Journal of Pharmacology & Experiment. 68:301-418 (March) 1940

Nature of Pilomotor Response to Acetyl Choline: Some Observations on Pharmacodynamics of Skin. J. M. Coon and S. Rothman, Chicago. —p. 301.

Extracellular and Intracellular Hydrogen Ion Concentration in Relation to Anesthetic Effects of Barbituric Acid Derivatives. G. H. A. Clowes, A. K. Kelch and M. E. Kralh, Woods Hole, Mass.—p. 312.

Role of Changes in Extracellular and Intracellular Hydrogen Ion Concentration in Action of Local Anesthetic Bases. M. E. Kralh, A. K. Kelch and G. H. A. Clowes, Woods Hole, Mass.—p. 330.

*Thiocyanate Formation in Cyanide Poisoning as Affected by Methylene Blue and Sodium Nitrite. R. G. Smith, B. Mukerji and J. H. Seabury, Ann Arbor, Mich.—p. 351.

Respiratory Alkalosis During Anesthesia: I. Effects on Circulatory and Respiratory and Muscular Activity. M. H. SeEVERS, R. T. Stormont and H. R. Hathaway, Madison, Wis.—p. 365.

Id.: II. Influence on Survival. M. H. SeEVERS and R. T. Stormont, Madison, Wis.—p. 383.

Effect of Quantity on Intensity and Duration of Local Anesthesia Determined by a New Test. A. J. Leser.—p. 389.

Comparative Study of Twenty-Five Alkylthiobenzoates with Respect to Surface Anesthesia, Toxicity and Systemic Effects. H. R. Hulpieu, J. H. Kitchel and J. H. Weatherly, Indianapolis.—p. 395.

Therapeutic Activity of Mice. J. A. Kolmer, with assistance of Anna mental Brucellosis of Mice. J. A. Kolmer, with assistance of Anna M. Rule, Philadelphia.—p. 406.

Excretion of Combined Form of Morphine in Tolerant and Nontolerant Dogs. E. G. Gross and V. Thompson, Iowa City.—p. 413.

Cyanide Formation in Cyanide Poisoning.—Smith

Thiocyanate Formation in Cyanide Poisoning.—Smith and his co-workers studied the antidotal action of methylene blue and sodium nitrite in cyanide poisoning by determining whether they slowed the early formation of thiocyanate. Although the results do not permit unequivocal conclusions, they demonstrate a heretofore unknown action of methylene blue, that of promoting thiocyanate formation. The data obtained not only confirm the usual conception of the importance of thiocyanate formation in cyanide detoxication but advance the knowledge in this regard. The changes in the serum concentration and urinary excretion of thiocyanate after sublethal doses of cyanide were compared in dogs and rabbits treated and not treated with sodium nitrite and methylene blue. Cyanide caused a greater and more rapid increase and a more rapid fall in the serum thiocyanate concentration of the rabbit than of the dog. Sodium nitrite caused a definite initial depression of the increase in serum thiocyanate concentration after cyanide, in keeping with the hypothesis that part of the cyanide is held as cyanmethemoglobin and is thus unavailable for thiocyanate formation. This effect was more marked in dogs than in rabbits. A part of this action of sodium nitrite is explained by a destructive effect on thiocyanate itself. Methylene blue stimulated thiocyanate formation in the rabbit and probably depressed this process in the dog. The recovery of cyanide as urinary thiocyanate was rapid in the rabbit and slow in the dog. The degree of recovery was low in the dog as compared with that in the rabbit.

Journal of Thoracic Surgery, St. Louis
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Journal of Thoracic Surgery, Feb. 1940

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Pulmonary Ventilation and Anesthesia in Major Chest Surgery. C. Crafoord, Stockholm, Sweden.—p. 237.

Differential Pressures and Reduced Lung Function in Intrathoracic Operations. W. E. Adams, Chicago.—p. 254.

Hemicardiac Hypertrophy Due to Increased Peripheral Resistance: Study of Pulmonic and Aortic Stenosis Experimentally Produced. E. Holman, San Francisco.—p. 262.

Postnatal Growth of Lung. R. Cohn, San Francisco.—p. 274.

Notes on Gunshot Wounds of Chest. F. T. Ranson, Shanghai, China.—p. 278.

Self-Retaining Scapula Retractor. R. H. Overholt, Boston.—p. 291.

***Putrid Lung Abscess: Pathogenesis, Prognosis and Treatment.** M. B. Rosenblatt, New York.—p. 294.

Logic of Collapse Therapy: Mathematical, Physiologic and Clinical Study. F. Baum, Newark, N. J.—p. 322.

Primary (Bronchiogenic) Carcinoma of Lung, with Histopathologic Study of Forty Necropsies. J. Rahinovitsh, L. A. Hochberg and M. Lederer, Brooklyn.—p. 332.

Differential Intra-bronchial Pressures and Mediastinal Emphysema. R. J. Marcotte, F. P. Phillips, W. E. Adams and H. Livingstone, Chicago.—p. 346.

Lung Abscess.—Rosenblatt studied the records of 100 patients with putrid pulmonary abscess discharged from the city hospital in the last 10 years. In bronchiectasis, the abscess was found in the lower lobes in 75 per cent of the cases. In bronchiectasis, the abscess was found in the lower lobes in 75 per cent of the cases. In bronchiectasis, the abscess was found in the lower lobes in 75 per cent of the cases.

Putrid Lung Abscess.—Rosenblatt studied the records of ninety-four cases of putrid pulmonary abscess discharged from the medical, surgical and pediatric wards of the city hospital between 1920 and 1938. Abscesses occurring in bronchiectasis, a putrid necrosis complicating pneumococcal pneumonia, Friedländer pneumonia or miliary abscesses following bacteremia were not included. Tuberculosis was ruled out in all instances by sputum examination, guinea pig inoculation or necropsy. The cases were divided into those following operation (fifteen) and nonoperative (seventy-nine). The fifteen cases followed operation on the tonsils, teeth, jaw or nose, an appendectomy, herniotomy or mastoidectomy. Among the seventy-nine there were isolated instances which followed aspiration of a staple and of ammonia, submersion, hemiplegia and acute ulcerative tonsillitis. But in 94 per cent the abscess was not preceded by any known disease, accident or operation. However, the teeth and gums of sixty-two patients, 80 per cent, presented caries and gingival infection. This percentage was the same for the operative and nonoperative cases. The aspiration of putrid tartar into the lungs as a cause for the development of septic lung abscess deserves serious consideration. The frequent association of tonsillectomy, dental extraction and gingivodental infection strongly supports the aspiration theory. Routine smears and cultures of sputum or aspirated pus in about one third of the cases showed streptococci, both aerobic and facultative anaerobic, fusiform bacilli, spirochetes and unidentified gram negative bacilli. The earliest symptoms were usually those of an infection of productive cough with foul mucoid and consisted chiefly of exposure to inclement weather the day before the onset of these symptoms. The foul expectoration usually appeared within two weeks of the onset of illness and occurred suddenly after a severe coughing paroxysm. In the majority of cases the sputum was also blood streaked, and not infrequently there were moderately severe pulmonary hemorrhages. The location of sibilant rales in apical signs was rendered difficult because of sibilant rales in apparently uninvolved portions of the lung. Bronchoscopy and x-ray examination were of the greatest assistance in diagnosing the exact source of suppuration. In all but two cases the abscess was localized to a single lobe, in sixty-one in the right upper, middle or lower lobe, and in thirty-five in left upper or lower lobe. Most of the lesions in the lower lobes were situated in the apical segments. About 10 per cent of the patients had syphilis, and an equal number had hypertensive or arteriosclerotic cardiovascular disease. Three patients had diabetes. Various complicating conditions occurred in the abscess itself, in 12 per cent, was perforation into the pleural cavity with production of a putrid empyema. Cerebral metastases and bronchopneumonia and pulmonary extensions were other complications. Of the ninety-four cases, seventy-two were treated medically and twenty-two surgically. The medical procedures included postural drainage, bronchoscopic aspiration of arspenamine and facial pneumothorax, intravenous injection of arsphenamine and of guaiacol, rectal injection of ether in oil and oral administra-

tion of potassium iodide and sulfanilamide. The duration of illness in the medical cases ranged from sixteen to 3,217 days but was less than 150 days in the majority. The condition on discharge of the seventy-two medically treated patients was as follows: Four were cured, twenty-two improved, twelve unimproved and thirty-four dead. However, only three patients had no symptoms or x-ray evidence of abscess. Study of the other nineteen cases showed that seventeen were discharged with x-ray evidence of either a stationary or a progressive lesion and that two were discharged with characteristic symptoms of abscess. Most of the patients discharged as unimproved have frequent exacerbations of the abscess and they eventually die of the disease. The cause of twenty-three deaths was progression of the abscess, cardiac failure in three, pulmonary hemorrhage, cerebral metastases and bronchopneumonia in two each, and toxic hepatitis and gangrenous esophagitis in one each. Of the twenty-two patients treated surgically the operative procedure of one consisted of bronchoscopic removal of a staple, which resulted in a cure. The duration of illness in the other twenty-one cases ranged between three weeks and ten years. External drainage with evacuation of the cavity was the procedure used in all instances but one in which closed thoracotomy was done. Two patients were cured, four improved, three unimproved and twelve died. Four deaths occurred within twenty-four hours of operation and were due either to shock or to pulmonary edema, two occurred within two weeks of operation and were apparently due to emboli, and the remaining causes of death were progression of the disease in three, cerebral metastasis in one, bronchopneumonia in one and asphyxia due to a mucous plug in the trachea in one. The poor results of conservative treatment are obviously its indictments. Early excision and aeration of the abscess appears to be the rational solution to the problem. When this procedure has been followed, the percentage of cures is maximal and the mortality rate negligible.

Maine Medical Association Journal, Portland

31:35-68 (Feb.) 1940

- *Multiple Sclerosis (Disseminated Sclerosis): As Seen in Private and Hospital Practice. C. W. Steele and E. C. Higgins, Lewiston.—p. 35.
What Shall We Do with the Psychoneurotic? The General Practitioner's Point of View. M. W. Pearson, Ware, Mass.—p. 46.
Improving the Hospital Through Elevation of Professional Standards. J. C. Hiebert, Lewiston.—p. 52.

31:69-94 (March) 1940

- Skin Testing for Undulant Fever in Maine: Results Obtained in 500 Unselected Hospital Patients. E. R. Blaisdell, Portland.—p. 85.

Multiple Sclerosis.—Steele and Higgins state that the cause of multiple sclerosis is unknown and that therefore the present treatment is empirical and extremely difficult of evaluation because of the characteristic spontaneous exacerbations and remissions in the natural course of the disease. Therefore it is not surprising that when a remission occurred the form of treatment given at the time received the credit. Nonspecific measures should consist of improving and maintaining the patient's general health and nutrition. The patient should rest during an exacerbation and until improvement begins, but he should be encouraged to live during remissions as nearly a normal life as his condition will permit. Foci of infection are best removed. Overfatigue is to be avoided. Inorganic and organic arsenic have long been a part of the older type of routine treatment for multiple sclerosis. Artificial pyrexia has been recommended, but most physicians who have had experience with it are not in favor of either foreign protein therapy or hyperpyrexia. They feel that it may more often than not make the patient worse. Until a larger series of cases has been studied, this form of treatment should be used with care and discretion. Steele and Higgins suggest that all early cases of multiple sclerosis be treated by a regimen of fresh air, sunshine, a diet rich in vitamins and protein, additional large doses of vitamin B and intramuscular injections of liver extract. Until such time as more is known about the cause of the disease, it would seem wiser to use the less concentrated liver extracts and products which contain both vitamin B₁ and B₂. Seven cases of multiple sclerosis in private and hospital practice are cited.

New England Journal of Medicine, Boston

222:335-372 (Feb. 29) 1940

- *Value of Routine Blood Protein Determinations: Report of Results in 320 Consecutive Cases. H. H. Shuman and H. Jeghers, Boston.—p. 335.
Surgical Problems in Diverticulitis. E. P. Hayden, Boston.—p. 340.
Antepartum Gas Bacillus Infection: Report of Case with Septicemia and Recovery But with Death of Fetus. S. A. Cosgrove and T. A. Barry, Jersey City, N. J.—p. 344.
Hyperinsulinism (Hypoglycemia): Report of Case. A. LaSalle, Somerset, Mass.—p. 348.
Children's Surgery. W. E. Ladd, Boston.—p. 349.

Routine Blood Protein Determinations.—Shuman and Jeghers point out that although many investigators have stressed the clinical importance of blood protein determinations the complexity of the available methods has hindered the widespread use of this procedure. The recently introduced Kagan method combined for the first time simplicity with the desired quantitative accuracy. The authors employed this method in 320 cases admitted to the Fifth Medical Service of the Boston City Hospital. Control tests were made on twenty-five persons. The blood sample was collected at the same time as for the routine Hinton test. Two cc. was placed in a small dry test tube and centrifuged until the serum separated from the clot. The serum and proteinometer remained at room temperature for ten minutes before using. By means of a calibrated pipet 0.015 cc. (15 cubic mm.) of serum was introduced into the glass cylinder of the proteinometer, and the time required for the drop of serum to fall 10 cm. through the oil was measured to one-tenth of a second by means of a stopwatch. The protein value of the serum was obtained from a calibrated chart, correction being made for the temperature of the oil. Most of the determinations required less than one minute. In 238 cases (74.5 per cent) the total protein values were within normal range of from 6 to 8 Gm. per hundred cubic centimeters. Almost 25 per cent of the patients had subnormal protein values. Edema was distinctly more common in the low protein group, so much so that it seemed justified to consider hypoproteinemia as the main or at least a contributing cause of edema. The difficulty of controlling cardiac decompensation in the presence of hypoproteinemia is particularly important and is often overlooked. The presence of edema indicates the necessity for determining the blood protein level. The influence of dehydration on the blood protein level is extremely important. It is common for very ill patients to be dehydrated on admission, thus increasing the total protein value of the blood. A true estimate of the blood protein level cannot be secured until the fluid balance of the body has been restored to normal. This should be considered in clinics where it is customary to take blood specimens immediately after the patient is admitted. The determination of the total blood protein value is the earliest laboratory test available for detection of a dietary deficiency. It is obvious that most persons with hypoproteinemia will respond favorably to dietary measures alone. However, the presence of liver disease and deficient gastrointestinal absorption or utilization may preclude such a simple approach. Where necessary, intravenous therapy in the form of blood transfusion or, if available in the future for general human use, injections of lyophile serum or amino acids would be indicated.

Northwest Medicine, Seattle

39:41-80 (Feb.) 1940

- Cholecystography: Appraisal After Fifteen Year Period. S. Moore, St. Louis.—p. 43.
Failure of Circulation: Mechanism of Various Types with Diagrammatic Illustrations. I. C. Brill, Portland, Ore.—p. 50.
Review of Vitamin K and Role of Phthiocol in Exerting Its Antihemorrhagic Activity. S. Vukov, Seattle.—p. 54.
Spontaneous Rupture of Heart: Report of Nine Cases. G. A. C. Snyder, Spokane, Wash.—p. 58.
Meckel's Diverticulum and Littre's Hernia: Report of Case. R. E. Ringo and M. R. Charlton, Tillamook, Ore.—p. 60.
Abdominal Injuries Due to Impalement of Rectum: Report of Two Cases. J. A. Dunne and R. D. Forbes, Seattle.—p. 61.
Arsenical Poisoning. J. Beeman, Portland, Ore.—p. 63.
Undulant Fever: Successful Treatment with Vaccine and Neoprontosil. Miriam Lincoln, Seattle.—p. 64.

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Rocky Mountain Medical Journal, Denver 37:161-240 (March) 1940

- Clinical Observations on Use and Method of Administration of Certain General Anesthetic Agents. J. S. Lundy and E. B. Tuohy, Rochester, Minn.—p. 179.
Physical, Physiologic and Psychologic Considerations in Selecting Personnel for Military Aviation. N. C. Mashburn, Randolph Field, Texas.—p. 181.
Disappointing Results of Gastro-Enterostomy. F. R. Harper, Denver.—p. 186.
Nonvenereal Syphilitic Infections. J. G. Hutton, Denver.—p. 191.
Traumatic Appendicitis. D. Prey and J. M. Foster Jr., Denver.—p. 197.
Diphtheria in Colorado: Historical Sketch. W. C. Mitchell, Denver.—p. 199.
Angina Pectoris. M. Katzman, Denver.—p. 205.

South Carolina Medical Assn. Journal, Greenville 36:65-96 (March) 1940

- Laryngotracheobronchitis with Loss of Cough Reflex: Report of Case. G. D. Johnson, Spartanburg.—p. 65.
Gunshot Perforation of Spleen and Diaphragm. E. F. Parker, Charleston.—p. 67.
Historical Sketch of the Medical Society of South Carolina. J. J. Ravenel, Charleston.—p. 69.
Spontaneous Osteomyelitis of Skull. N. O. Eaddy, Sumter.—p. 73.

Southern Surgeon, Atlanta, Ga. 9:149-222 (March) 1940

- Preoperative and Postoperative Use of Drugs in Surgery of Gastrointestinal Tract. Mims Gage, New Orleans.—p. 149.
Surgical Management of Biliary Tract Disease. J. R. Phillips, Houston, Texas, and L. F. Knoepp, Beaumont, Texas.—p. 158.
March Foot: Personal Experience. C. E. Newell, Chattanooga, Tenn.—p. 169.
Left Paraduodenal Hernia. J. Ziskind and H. J. Schattenberg, New Orleans.—p. 175.
Atypical Signs and Symptoms in Perforated Peptic Ulcer. J. Mooney Jr., Statesboro, Ga.—p. 179.
Massive Dilatation of Common Bile Duct: Presentation of Case with Report of Autopsy. E. Jelks, Jacksonville, Fla.—p. 187.
Simplified Automatic Intermittent Irrigator. H. C. Myers, Philippi, W. Va.—p. 193.

Surgery, Gynecology and Obstetrics, Chicago 70:257-602 (Feb. 15) 1940

- Essential Principles in Clean Wound Healing. A. O. Whipple, New York.—p. 257.
Vitamin and Protein Factors in Preoperative and Postoperative Care of Surgical Patient. E. Holman, San Francisco.—p. 261.
Reestablishment of Gastrointestinal Passage After Gastric Resection. E. Pölya, Budapest, Hungary.—p. 270.
Operability and Factors That Increase Curability of Carcinoma of Rectum. T. E. Jones, Cleveland.—p. 291.
Surgical Treatment of Duplications of Alimentary Tract; Enterogenous Cysts, Enteric Cysts or Ileum Duplex. W. E. Ladd and R. E. Gross, Boston.—p. 295.
Control of Hemorrhagic Tendencies. W. Walters, Rochester, Minn.—p. 308.
Current Methods in Management of Peptic Ulcer. V. C. Hunt, Los Angeles.—p. 319.
Foreign Bodies in Air and Food Passages: Observations on End Results in Series of 950 Cases. L. H. Clerf, Philadelphia.—p. 328.
Water and Electrolyte Balance. F. A. Collier and W. G. Maddock, Ann Arbor, Mich.—p. 340.
Conservative Surgery in Treatment of Bone Tumors. D. B. Phemister, Chicago.—p. 355.
Decompression in Treatment of Intestinal Obstruction. C. G. Johnston, Detroit.—p. 365.
Management of Chronic Pelvic Infections. G. H. Gardner, Chicago.—p. 370.

Control of Hemorrhagic Tendencies.—Walters groups hemorrhagic tendencies of surgical patients into three divisions: bleeding from lesions of the gastrointestinal tract, bleeding in the presence of lesions of the biliary tract and jaundice and bleeding by patients having certain blood dyscrasias such as hemorrhagic purpura, hemophilia and pseudohemophilia. The most frequent cause of gastrointestinal bleeding is an ulcer of the posterior duodenal wall which perforates into the pancreas and erodes one of the branches of the gastroduodenal artery. Approximately two thirds of the patients who have duodenal ulcer do not have hemorrhages as a result of it. If these cases were included in a study to determine the incidence of fatal hemorrhage among patients having chronic duodenal ulcer the incidence would appear to be rather low, but if the incidence of fatal hemorrhage is determined among the 33 per cent of patients who do bleed it would be found to be much higher, varying from 14 (Holman) to 40 per cent (Finsterer). The

condition of the patient with an acutely bleeding duodenal ulcer should be regarded as a surgical emergency and treated accordingly. When necessary the hemorrhage should be controlled by opening the duodenum and suture-ligating the gastroduodenal artery, provided the condition of the patient permits. Bleeding tumors of the stomach and colon may cause continuous bleeding without gastrointestinal symptoms. Anemia, weakness, dizziness and faintness may be the only symptoms present. Intestinal bleeding may occur as the result of an ulcer or an ulcer of Meckel's diverticulum. In jaundiced patients with hemorrhagic tendency the prothrombin clotting time of the blood may be prolonged. The oral administration of bile salts and vitamin K will decrease the prothrombin clotting, and bleeding will cease. Phthiolol, a naphthoquinone, has been reported to have physical and chemical properties similar to those of pure vitamin K. Immediate transfusions of blood and, later, ligation of the coronary vein and possibly splenectomy have produced satisfactory results in several instances of the liver. Hemophilia and varices secondary to cirrhosis of the liver. Hemophilia especially pseudohemophilia may be unsuspected until bleeding from operated regions calls attention to the blood dyscrasia. Cell free, normal plasma contains a substance which will shorten the coagulation time of the blood of patients who have hemophilia. Globulin can be precipitated from normal plasma which is as effective in controlling hemorrhage as cell free, normal plasma. The surgical treatment of hemorrhagic episodes. This thrombocytopenia consists in the removal of the spleen. This should be done in the interval between hemorrhagic episodes. Although aplastic anemia and acute leukemia are diseases in which the hemorrhagic tendency occurs, their occurrence is infrequent among surgical patients. Treatment consists of the palliative administration of blood.

Foreign Bodies in Air and Food Passages.—Clerf reviews 950 cases of foreign bodies in the air and food passages. Dyspnea occurred more often and tracheotomy was required more frequently when the foreign bodies were of vegetal origin. Subcutaneous emphysema of the neck was observed frequently following tracheotomy. However, subcutaneous and mediastinal emphysema may develop before instrumentation or operation is instituted. Pulmonary abscess is often observed particularly in cases of foreign bodies of long sojourn and in complete bronchial obstruction with suppuration. Unfavorable developments are not as common following esophageal foreign bodies as in foreign bodies in the air passages. The common complications are injury to the esophageal wall with infection varying from traumatic esophagitis to mediastinitis. Fatal results may occur from pressure necrosis and erosion into a large vessel or perforation of its wall. There were sixteen deaths, or 1.68 per cent, in the 950 cases.

Water and Electrolyte Balance.—Collier and Maddock discuss the problem of water and electrolyte balance as it pertains to the surgical patient. The kidneys are most important in maintaining the water balance. A small volume of urine, particularly of high specific gravity, means insufficient available water. The patient who can eat and drink should seldom be and rarely is a water balance problem. In some disease conditions nothing can be taken by mouth and under these circumstances the water lost by vaporization and in the stool and urine must be replaced by parenteral injection, to tide over an emergency only. About 1,000 cc. of urine daily is recommended for a good output for the majority of surgical patients. For seriously ill patients, particularly those with sepsis, with severe biliary tract disease or with some renal impairment from any cause, a water intake that provides at least 1,500 cc. of fluid daily is often desirable. From 2,000 to 2,500 cc. daily of fluid parenterally is ample for a great many patients who cannot take fluids by mouth. For those with complications, for example during hot and humid weather when vaporization is great, must be kept in mind. Five or 10 per cent dextrose in distilled water is recommended for parenteral administration. Very little of the dextrose is excreted in the urine, the majority is rapidly oxidized or stored as glycogen, the water of the solution becomes available for all

purposes and it does not wash out appreciable amounts of sodium chloride through the kidneys unless an excess of this electrolyte is present. To provide for minor electrolyte losses the authors administer 500 cc. of Ringer's solution daily to patients whose chief need is water for vaporization and water for urine and who are receiving dextrose solution in water for that purpose. Abnormal losses of fluid from the body by vomiting result in both a loss of water and the substances in solution in that water and must be compensated for. Patients requiring electrolytes are divided into two groups: (1) those with normal electrolytes to begin with but who, while in the hospital, lose electrolyte containing fluids through vomiting, gastroduodenal suction and biliary or enterostomy drainage and (2) those patients with depleted electrolytes as a result of electrolyte fluid loss before admission to the hospital. There is some overlapping of these groups. The first group of patients should always have their electrolyte fluid losses measured, and occasionally the electrolytes can be restored by the oral administration of sodium chloride, hydrochloric acid, ammonium chloride or sodium bicarbonate. If parenteral therapy is needed and the fluid loss is replaced with an equal volume of Ringer's solution, an adequate replacement of the water and the predominant electrolyte loss is made. This volume for volume replacement is the fundamental procedure carried out in this group. The second group of patients usually needs a substantial amount of Ringer's solution to restore water and electrolyte composition to normal. To do this in a quantitative fashion, a clinical rule was developed that for each hundred milligrams that the plasma chloride level needs to be raised to reach the normal (560 mg. per hundred cubic centimeters) the patient should be given 0.5 Gm. of salt per kilogram of body weight.

Tennessee State Medical Assn. Journal, Nashville

33:79-118 (March) 1940

- Medical Aspects of Gallbladder Disease. L. Motley, Memphis.—p. 79.
Manifestations of Allergy Other Than Asthma. A. M. Goltman, Memphis.—p. 86.
Ten Year Review of Local Obstetrics. E. F. Buchner Jr., Chattanooga.—p. 91.
Management of Common Eye Conditions in the Field of the General Practitioner. E. L. Grubb, Knoxville.—p. 94.

Union Médicale du Canada, Montreal

69:233-348 (March) 1940

- *Efficacy of Sulfapyridine in Treatment of Acute Infections of Respiratory Tract of Children. L. C. Simard and A. Guilbeault.—p. 244.
Malignant Granulopenia: C'td. A. Marin.—p. 250.

Sulfapyridine in Acute Respiratory Infections of Children.—Simard and Guilbeault report the remarkable decline in mortality achieved by sulfapyridine in children's pneumonias and bronchopneumonias. In fifty-two cases treated with sulfapyridine only four deaths (7.6 per cent) occurred, as compared with twenty-four deaths (32.5 per cent) out of seventy-seven other cases and sixteen deaths (29 per cent) out of fifty-five cases in which the usual methods were used. The dosage employed by the authors was based on the body weight of the child, $1\frac{1}{2}$ grains (0.1 Gm.) per pound on the first day and 1 grain (0.065 Gm.) per pound on subsequent days. An infant weighing 10 pounds (4.5 Kg.) would therefore receive on the first day 15 grains (1 Gm.) daily divided into six equal portions and given every four hours day and night and on subsequent days 10 grains (0.65 Gm.), apportioned and administered in the same way. Treatments ceased when pulmonary symptoms disappeared, and even sooner if rapid improvement was observed, though in no case before the return of normal temperature. In case of vomiting, sodium bicarbonate was added, the schedule of dosing continuing according to plan, and in persistent vomiting sulfapyridine was administered intramuscularly. Dosage based on the child's age was found to be less exact. Return of temperature to normal levels was noted within forty-eight hours when illness was no more than three days old. Prolonged administration is recommended in cases in which sulfapyridine treatment was delayed until after the fifth day after onset of the disease and when pulmonary signs persisted after deferment. The authors call attention to the frequent concomitance of otitis with bronchopneumonias. In their fifty-two cases otitis was observed twenty-eight times (in the seventy-seven

cases there were thirty-four complications with otitis and, in the fifty-five cases, thirty-one). Three cases selected for clinical comment presented bilateral suppurative otitis, which readily healed on surgical intervention. The authors believe that otitis in children is an obstacle to recovery from pneumonia and a cause of death, if neglected, because of toxic involvements to the lungs and meninges. An otoscope, they say, is as much needed as a stethoscope in bronchopneumonias of children.

West Virginia Medical Journal, Charleston

36:97-144 (March) 1940

- Obstetric Complications with Conflicting Interest of Mother and Child. T. L. Montgomery, Philadelphia.—p. 97.
*Penetrating Wounds of Abdomen Inflicted by Firearms. H. H. Ritter, Montgomery.—p. 107.
Disease Prevention in Early Life. W. B. Hunter, Huntington.—p. 113.
Peroral Endoscopy: Discussion of Its Application in Diagnosis and Treatment. Sobisca S. Hall and H. V. Thomas, Clarksburg.—p. 117.
The Middle Ear from the Point of View of Infection. A. A. Seletz, Charleston.—p. 120.
Gelatin-Epinephrine Mixture as Medium for Pollen Administration. F. C. Reel, Charleston.—p. 126.
Autotransfusion in Traumatic Rupture of Spleen. P. Johnson, Fairmont.—p. 127.
Postgraduate Recommendations for West Virginia. G. M. Lyon, Huntington.—p. 128.

Penetrating Wounds of Abdomen Inflicted by Firearms.—Ritter declares that the severity of gunshot wounds of the abdomen is determined by the degree of visceral damage, the amount of hemorrhage and the time elapsed before surgical intervention. Visceral damage includes contusions, abrasions, penetrations, perforations and lacerations. The factor of the degree of visceral damage is out of control of surgery; therefore certain injuries will always carry a high mortality rate. Damage to a hollow viscus is more serious than to a solid one. A perforation of the stomach or small intestine is not as dangerous as one of the large bowel. The greater the number of perforations the more difficult and time consuming is their isolation and suture. Hemorrhage is partially under surgical control. Mason has suggested that shock in these cases is the direct result of hemorrhage. The time factor is under control of the surgeon to a much larger degree. The mortality rate increases with the time elapsed between the occurrence and operation. The course of a bullet through the abdomen may be almost fantastic, and because many of these patients appear to be in most excellent condition on admission, laparotomy is deferred. Roentgenographic and fluoroscopic study in showing the position of the bullet is often a definite aid. These facilities may also aid in tracing the course of the bullet when there is no point of exit and may give an indication as to what viscera were probably injured. Laparotomy remains the only sure method of diagnosing perforations and this should be done at the earliest time possible. Too early operation when shock exists may be just as disastrous as delayed operation in cases of hemorrhage. The two main causes of death in these injuries are extensive hemorrhage associated with shock and peritonitis. The use of blood transfusions is of paramount importance. Perhaps the best time to begin the transfusion is immediately after the abdomen has been opened and the bleeding points have been secured. Spinal anesthesia is to be avoided because it may produce shock. Ether is the most widely used because it is neither time consuming nor inadequate for exploratory laparotomy and gives the maximal relaxation. The author used pentothal sodium in only two cases and the results were so satisfactory that he is tempted to encourage its use. The necessity for speed (the operative time should not be longer than one hour) should not result in hasty exploration. Drainage of the peritoneum is not advocated. Postoperative treatment is most important. It should include all or most of the following measures: antitetanic and gas bacillus serum, external heat, carbon dioxide plus oxygen insufflations, prone position until shock is recovered from, sedation, nothing by mouth until normal peristalsis is restored, venoclysis and hypodermoclysis (governed by careful water balance consideration and blood chemistry determinations), blood transfusions and the control of distention and vomiting by rectal tube, gastric lavage and duodenal drainage. Gunshot wounds of the abdomen inflicted from a distance should be treated expectantly.

CURRENT MEDICAL LITERATURE

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted.
w. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

24:105-152 (March) 1940

- X-Ray Treatment of Malignant Tumors in Region of Eyes. D. W. Smithers.—p. 105.
Postcataract Hyphema. A. S. Philips.—p. 122.
Dislocation of Lenses, with Other Congenital Defects: Secondary Glaucoma. N. B. Harman and R. Buxton.—p. 135.
Retinitis Stellata in Connection with Focal Infection. B. Boros.—p. 137.

British Journal of Surgery, Bristol

27:433-624 (Jan.) 1940

- Unusual Case of Obstruction to Common Bile Duct (Choledochocoele?). W. I. de C. Wheeler.—p. 446.
Sensitivity in the Abdomen. V. J. Kinsella.—p. 449.
Removal of Large Spleens. A. K. Henry.—p. 464.
Jejunogastric Intussusception. R. Shackman.—p. 475.
Dislocation of Inferior Radio-Ulnar Joint as Complication of Fracture of Radius. G. Hyman and F. R. R. Martin.—p. 481.
Etiology of Hallux Rigidus. E. A. Jack.—p. 492.
Radium in Treatment of Carcinoma of Prostate. M. Silverstone.—p. 498.
Plethysmography of Skin in Investigation of Peripheral Vascular Diseases. R. H. Goetz.—p. 506.
*Precocious Puberty in a Boy of One Year. I. Fraser.—p. 521.
Closed Intrapleural Pneumolysis: Articulated Hook Caution. R. J. C. Maxwell.—p. 527.
Remnants of Vitelline Vascular System as Cause of Intestinal Obstruction. J. S. Buchanan and H. Wapshaw.—p. 533.
Transplantation of Ureters into Large Bowel and Its Effect on Kidneys. C. Morson and W. H. Graham.—p. 540.
Postoperative Results of Nephrectomy. H. G. Hanley.—p. 553.
*Heparin in Thrombosis and Embolism. G. D. W. Murray.—p. 567.

Precocious Puberty.—Fraser reports a case of extreme virilism in a boy of 12 months, presumably the youngest on record. Precocity in bone and dentition was noted. The value of the capon and colorimetric tests, as well as the ponceau fuchsin stain, was demonstrated. The boy until the age of 6 months was a normal child, when the penis began to enlarge rapidly, the prostate became the size of a walnut and erections were almost constant. Masturbation took place frequently, pubic hair appeared and acne of puberty appeared on the face. The face became old for his age, the voice deep pitched, hands greatly enlarged and muscular development excessive, the appearance of the epiphyses was greatly in advance of his age and body weight increased out of all proportions. He ate about three times the supply of food normally given a child of 12 months. He was retarded. He was unable to talk and rarely used the "mamma-baba" words expected of a child of 12 months. He seemed to have little affection except for food. From the age of 6 months he lost his cleanly habits as regards urine and feces. He became bad tempered and difficult to manage. The author does not claim that these had any direct connection with his increased virilism. Briefly the boy's age was (1) by calendar 12 months, (2) by mental advancement 12 months, (3) by bone epiphyses 5 years, (4) by dentition 3 years, (5) by sexual organs (penis and prostate but not testicles) 18 years. Biologic tests carried out on the urine of the boy revealed that the child at 12 months of age was more virile than the average adult male. Abdominal exploration revealed a tumor the size of a golf ball above the right kidney. The rest of the abdominal contents felt normal. After a considerable delay the second operation as performed when the boy was 18 months old. A high kidney dissection was made. The twelfth rib was retracted and the adrenal tumor delivered with much greater ease and less bleeding than was expected. The tumor was pyriform, with the apex apparently attached without a stem to the inferior vena cava. The child was back in bed in thirty minutes, recovered well and was taking fluids ravenously. Suddenly, twenty hours later, he collapsed and died. A complete necropsy was performed but no abnormality other than enlargement of the vesicles and prostate could be found.

Heparin in Thrombosis and Embolism.—Murray carried out experimental studies on dogs to determine whether heparin would prevent thrombosis. He found that superficial veins in the extremities of dogs may be moderately traumatized without producing thrombosis. He developed a technic by which thrombosis could be produced in more than 80 per cent of instances.

Controlled experiments on animals have shown that purified heparin is nontoxic. Experiments on arteries and veins have shown conclusively that heparin will prevent thrombosis and clotting. Operations on blood vessels can be carried out experimentally with greater success by using heparin. By continued injection of this substance, blood vessels have been kept patent until healing has taken place. Venous grafts in arteries have been kept patent successfully and have functioned satisfactorily for about one year. In more than 400 cases in the Toronto General Hospital, heparin has been shown to have no toxic effect when reasonable doses are administered. In this group of cases there was no thrombosis of superficial or deep veins and in none did embolism occur. Cases of thrombophlebitis were thought to be improved by treatment with heparin. The effects of heparin in a few cases of pulmonary embolism did not occur and no one died of pulmonary embolism. Embolotomies were all successful when the vessels were cleared satisfactorily and treatment with heparin was carried out. In one case a venous graft was placed in an artery, and this remained patent and functioned satisfactorily. In diseases in which clotting and thrombosis of blood vessels occurs, heparin may be of advantage. The work of Widstrom and Wilander in preventing clotting of inflammatory pleural exudates suggests possible uses for heparin in some of the lesions involving serous cavities.

British Medical Journal, London

1:333-376 (March 2) 1940

- The Public Health in War Time. A. MacNalty.—p. 333.
Influence of Low Oxygen Pressure in Atmosphere on Incidence of Primary Lung Tumors in Mice. J. A. Campbell.—p. 336.
Wounds Penetrating Knee Joint. E. L. Ferguson and L. F. Dangerfield.—p. 339.
Temperatures Lethal to the Louse. P. A. Buxton.—p. 341.
Effect of Follicular Hormone on Nonpatent Fallopian Tubes. Margaret Moore White.—p. 342.
Lateral Aberrant Thyroids. M. A. Hameed.—p. 344.

Glasgow Medical Journal

15:41-72 (Feb.) 1940

- Cyclopropane Anesthesia: Notes on 200 Cases. H. H. Pinkerton.—p. 41.

Lancet, London

1:395-440 (March 2) 1940

- *Perforated Peptic Ulcer: Changes in Age Incidence and Sex Distribution in Last 150 Years. D. Jennings.—p. 395.
B. L. B. (Boothby, Lovelace and Bulbulian) Mask for Administering Oxygen. W. I. Card, J. F. Smith, W. J. Griffiths, B. A. McSwiney and B. Savage.—p. 398.
Faulty Detoxication in Schizophrenia: Abnormal Excretion of Hippuric Acid After Administration of Sodium Benzoate. J. H. Quastel and W. T. Wales.—p. 402.
Faulty Detoxication in Mental Disorder. D. R. Davies and T. P. E. Hughes.—p. 403.
Endometriosis of Bladder. W. C. W. Nixon.—p. 405.
Absorption of Progesterone and Desoxycorticosterone from Tablets Implanted Subcutaneously. M. H. Warwick and A. S. Parkes.—p. 406.

1:441-486 (March 9) 1940

- *Clinical Malaria in Children. Cicely D. Williams.—p. 441.
*Perforated Peptic Ulcer: Changes in Age Incidence and Sex Distribution in Last 150 Years. D. Jennings.—p. 444.
Lead Content of Human Blood. J. N. M. Chalmers.—p. 447.
Fractures of Neck of Femur in Convulsion Therapy. W. Gissane, D. Blair and B. K. Rank.—p. 450.

Changes in Age Incidence and Sex Distribution of Peptic Ulcer.—Jennings examined all available papers on acute perforations, besides a mass of unpublished material in England and abroad. He presents evidence that distinct groups of ulcer cases exist, that their incidence varies independently, that the present common type of pyloric ulcer was relatively uncommon up to recently, and that its increase is a true increase and not merely the result of better diagnosis and hospital service. In this extensive review the author emphasizes that too much attention has been paid to the constitutional factor in peptic ulcer and not enough to environmental causes. The history of uncomplicated ulcers is obscured by changes in the fashion and in the selection of patients admitted to the hospital or coming to necropsy. The history of perforated ulcer can be reconstructed from available records in several countries. Between 1850 and 1900, of every six free perforations into the peritoneal cavity, three affected young women under 25, one

an elderly woman, one an elderly man and one a young man. Since 1920, of every ten perforations, one has affected an elderly woman and nine men mostly in the middle years or younger. Perforations in young women form a sharply defined group, which increased rapidly at the beginning of the nineteenth century and died out completely and suddenly at the beginning of the twentieth, the same changes taking place at about the same time in Germany, France, Scandinavia and the English-speaking countries. This type of ulcer must therefore have been due to something in the environment or in the mode of life. Perforated pyloric ulcers in men can also be shown statistically to fall into at least two independent groups. One group is closely associated with lesser curve perforations. It has a similar incidence to that of perforation in women since 1920. The other group tends to affect younger men and has recently undergone a large increase in northwest Europe and presumably throughout the English-speaking countries. Owing to increased facilities for admission to the hospital and other factors, it is impossible to measure this increase directly in France, Germany, Italy, England and the United States, but there is evidence that in parts of Sweden the increase is from 300 to 600 per cent. This estimate agrees with the change in ratio from two men: one elderly woman to ten men: one elderly woman, which has taken place in several countries. It follows that something in the mode of life is also responsible for this type of perforation. It is impossible to find sources of information in western Europe or in the United States which would enable changes in incidence of uncomplicated ulcer to be estimated. Uncomplicated ulcers cannot therefore be proved to fall into the same categories as perforated ulcers, but there is indirect evidence that they do. The author urges that perforated peptic ulcers and many other so-called constitutional diseases should be notified. Thus accurate statistics could be compiled for cases of acute perforations and if such statistics were available for transition periods they would probably be of great service in elucidating the mechanism and in a campaign of prevention.

Malaria in Children.—Williams maintains that the clinical varieties of malaria are well defined but do not correspond to the different varieties of the parasite. The four types to be kept in mind in treating children are (1) acute malaria with parasites present and distinct symptoms, (2) chronic malaria with parasites present, (3) chronic malaise in children from a malarial country in whom no parasites can be found but who improve under adequate treatment with quinine and (4) presence of malarial parasites in blood of apparently normal children. These individuals are apt to develop an attack of fever if subjected to chill, overwork, underfeeding or strain. They are probably more subject to intercurrent diseases than are children whose blood is free from the parasite. A table listing the age incidence of malaria among 436 children at the Children's Hospital, Accra, showed that the ages varied between 2 weeks and 14 years. The author emphasizes that the manifestations of malaria are just as various in infants and children as they are in adults. Anemia and convulsions are more common, more severe and more sudden than in adults. The author advocates treatment with quinine and iron. For oral administration he considers quinine sulfate preferable to the hydrochloride. Intramuscular injections of quinine are often of value, particularly when gastrointestinal disturbances hinder the absorption of quinine given by mouth. In a malarial country attacks of fever are common in babies aged from 6 to 18 months. If the patient survives, immunity is gradually developed. Treatment with quinine does not seem to interfere with the development of immunity. Children should not be taken unnecessarily to a malarial country, but with intelligent cooperation from the parents many of the dangers can be avoided. Malaria is preventable. Children should be protected from mosquitoes by spending the hours after dusk and while sleeping during the day either in a screened room or under a mosquito net. Every effort must be made to provide an adequate and suitable diet to increase resistance. Prophylactic treatment with quinine is not advised by all authorities but it probably does some good. It is best given at bedtime. The parents should be taught that it is important for children to receive adequate treatment early in the disease. At the first sign of fever, quinine should be given and the child taken to a doctor.

Medical Journal of Australia, Sydney

1:215-252 (Feb. 17) 1940

Intestinal Obstruction. I. B. Josc.—p. 215.

Preoperative and Postoperative Treatment of Acute Intestinal Obstruction. N. J. Bonnin.—p. 219.

*Hemolytic Streptococcus Infections Following Childbirth and Abortion: I. Determination of Virulence of Group A Strains. Hildred M. Butler and A. M. Hill.—p. 222.

*Pooled Adult Serum in Prophylaxis of Measles. Hilda W. Bull.—p. 228.

Hemolytic Streptococcus Infections Following Childbirth and Abortion.—From the study of 101 group A strains causing puerperal or abortion infection Butler and Hill were able to establish a relationship between certain properties of the strains and severity of infection. The demonstration of capsules in young cultures indicated that in general capsulated strains gave rise to severe invasive infections, while the non-capsulated varieties were associated with the mild cases. This correlation was in agreement with the ability of the strains to resist phagocytosis in freshly defibrinated human blood. The capsulated organisms were usually resistant to phagocytosis and were able to multiply in such blood, whereas the noncapsulated strains were readily taken up by the leukocytes. The results obtained show that in the 101 group A strains the capsulated strains were possessed of far greater capacity to invade the tissues and to set up an acute generalized infection than were the noncapsulated organisms. Of twenty-two such strains from blood cultures twenty-one were capsulated in young cultures. This observation agrees with the experience of Dawson and Olmstead (1934) that acute and fulminating infections were due to capsulated strains. White, Rudd and Ward (1939), from a study of scarlet fever, believed that capsulated strains showed a greater degree of infectivity, but they did not believe that noncapsulated organisms were less virulent than the capsulated strains once the tissues were infected. Butler and Hill state that their results suggest that in puerperal sepsis the capsulated strains are far more virulent than the noncapsulated strains. The noncapsulated strains, although capable of infecting the tissues, lack sufficient virulence to cause severe or fatal infections. The examination of group A strains for the presence of capsules in young cultures, either alone or in conjunction with observations on resistance to phagocytosis and colony form, should usually enable one to predict the probable severity of a puerperal infection within twenty-four hours of taking the vaginal swab.

Pooled Adult Serum in Prophylaxis of Measles.—According to Bull, when measles broke out in Melbourne after an absence of three years adult pooled serum was offered to all young exposed children as prophylaxis. The usual dose was 15 cc., but it varied from 10 to 20 cc. according to the age and condition of the patient. Treatment was given to 258 children between 1 and 4 years of age who had been exposed to the infection of an adult member of the family, and about 100 children received treatment in institutions. Of the 258 children treated, sixty-seven escaped the disease, 151 had it in the attenuated form with no prodromal sickness and no complications, thirty-seven had moderate attacks and only three had severe attacks, one with slight bronchopneumonia. More than 10 per cent of the untreated children less than 6 years of age in the rest of the population had severe complications, mostly bronchopneumonia requiring hospital treatment, and two died.

South African Medical Journal, Cape Town

14:45-64 (Feb. 10) 1940

Caseous Hydatid Cysts: Two Cases. F. H. Kooy.—p. 47.
Small Epidemic of Infective Polyneuritis. W. K. Blackie and D. M. Blair.—p. 49.

Chinese Medical Journal, Peiping

56:501-600 (Dec.) 1939

Liver Degeneration Following Neoparsphenamine and Mapharsen Treatment. I. Snapper, K. Y. Chin and S. H. Liu.—p. 501.

Immunity to Infection with Leishmania Canis of Hamsters Recently Cured of Leishmania Donovanii Infection. H. L. Chung and C. W. Wang.—p. 519.

Intramuscular Administration of Sulfapyridine (Dagenan) and Its Use in Treatment of Lobar Pneumonia. P. T. Kuo and C. H. Ho.—p. 523.

Control of Scarlet Fever: Part II. Active and Passive Immunization Against Scarlet Fever. P. L. Fan.—p. 532.

Helminth Parasites of Rats in Kwei-yang. T. H. Chin.—p. 548.

CURRENT MEDICAL LITERATURE

Presse Médicale, Paris

48:121-160 (Feb. 6) 1940. Partial Index

Early Detection of Pulmonary Tuberculosis and Its Medico-social Importance. C. Fraga.—p. 121.
Aphasia and Left Parietal Lobe. A. Austregesilo.—p. 126.
Chromoblastomycosis. O. da Fonseca.—p. 133.
Adrenal Insufficiency. Annes-Dias.—p. 139.
Achalasia of Pylorus in Adults. A. C. Netto.—p. 148.

Achalasia of Pylorus in Adults.—Netto presents four cases of pyloric achalasia, the ages of the patients ranging between 14 and 25 years, in which Finney's operation was successfully performed. Two of the patients had a mega-esophagus, one a megacolon. The symptoms consisted of dyspepsia, a sense of fulness after meals, eructations, nausea, vomiting and hyperperistalsis in the epigastric region. Stenosis of the pylorus was not evident in the roentgenograms. On surgical intervention only an abnormal thickening in the prepyloric antrum, due to hyperplasia of the muscle wall, was observed. According to the author, prepyloric achalasia is identical with hypertrophic stenosis of the newborn except for the absence of the tumor. This absence in adults is attributed to a generalized and uniform tissue hypertrophy. Microscopic examinations of resected portions show a pronounced cell loss in the Auerbach-Meisner plexus, replaced by fine fibrous tissue. However, no typical characteristics of degeneration of the vagus nerve cells are noted. The disease is ascribed to chronic vitamin B₁ deficiency involving defective myelinization of the sympathetic system and entailing a dysfunction of the sphincter. The author does not believe that the disease is due to spasms but regards it as a functional stenosis caused by the disturbance of the pyloric reflex. He thinks that the disease in adults is infrequent only for diagnosticians who seek the identical clinical picture that is found in the newborn. He therefore recommends a thorough diagnosis before surgical intervention.

Revue de Chirurgie, Paris

58:625-712 (Nov.-Dec.) 1939

General Principles of Treatment of Fresh Cranio-Encephalic Wounds Caused by War Projectiles. J. Ducuing, J. d'Harcourt, A. Giño and A. Folch.—p. 625.
Closed Method in War Surgery. J. d'Harcourt, A. Folch and A. Oriol.—p. 625.
Closed Method in War Surgery. J. d'Harcourt, A. Folch and A. Oriol.—p. 645.
Can the Condemnation of the Amputation of Chopart be Revised? A. Guibal and J. Ginestier.—p. 673.
Regional Ileitis. J. Meyer-May and T. T. Tung.—p. 692.

Closed Method in War Surgery.—D'Harcourt and his associates direct attention to Orr's closed method of treatment of chronic osteomyelitis. Orr advises saucerization and packing of the cavity with a plaster of paris cast to include the two adjoining articulations. The method has two disadvantages: the offensive odor and the aversion which this technic contrary to the general surgical habits raises among practitioners. For a number of years Orr's method had been used successfully with chronic osteomyelitis. In 1934 it was first applied in war fractures. The patients were those who had been injured with the customary method of immobilization and local antisepsis. The results were surprisingly favorable. During the Spanish war, from 1936 to 1939, the authors treated 7,500 wounded with fractures and followed up about 17,000 treated in other centers. The closed treatment has been extended to injuries of the soft parts of the extremities with great loss of tissue. The method considerably shortens the time required for the cure of the wound especially during the initial phase. It permits the application of conservative measures for injuries of the extremities and it reduces the number of amputations. The rigorous immobilization of the wound assures a more rapid epithelization and avoids pseudarthroses and poor position of the fragments so often observed in large compound, infected fractures and avoids the painful daily dressings, the mobilization and the absorption of the products of disintegration which take place in the course of mechanical manipulations. It prevents secondary infections so readily produced in the course of antiseptic lavages. The antiseptic proteolysis is absent and cicatrization of lesions is not interfered with by antiseptics, which although

bacteriotropic are destructive to fresh granulations. The lavage destroys the biologic products which activate the process of cicatrization. The dehydration by evaporation in these large wounds is considerably diminished. This constitutes an extremely important factor in the local reparative processes and in the dynamics of the organism.

Revue de Laryngologie, Bordeaux

61:1-60 (Jan.) 1940

Blocking of Endolymphatic Sac and Portmann's Operation. J. Waltner.—p. 1.
*Effect of Vitamins on Otosclerosis. M. Baer.—p. 33.

Vitamin Therapy in Otosclerosis.—Baer reports the negative results obtained in fifteen cases of otosclerosis with a combined vitamin B₁ and vitamin C therapy aiming at vitamin C saturation. Preliminary tests for vitamin C deficiency were made. A general vitamin C deficiency varying between 600 and 1,500 mg. was found. Vitamin treatment was preceded by air insufflation, ear massage and diathermy lasting for weeks and followed by the peroral use of vitamins B₁ and B and by simultaneous intravenous injections of vitamin C (once or twice a week), both vitamins being administered for from two to three months. Though no improvement in hearing was achieved, secondary ameliorations such as the cure of headache and cessation of noises in the ear were noted. Tinnitus aurium was less responsive. The author admits the possibility of interaction of other factors besides vitamins in the ameliorations obtained, believes that a satisfactory systemic vitamin C supply is compatible with a localized vitamin C deficiency and a consequent vascular involvement, and recommends the further investigation of the value of the vitamins for otosclerosis.

Schweizerische medizinische Wochenschrift, Basel

70:157-180 (Feb. 24) 1940. Partial Index

Hypophysial Disturbances. W. Berblinger.—p. 157.
System of the B Vitamins. H. Willstaedt.—p. 159.
Retinitis Pigmentosa and Hypophysis. H. Zondek and Gerda Wolfssohn.—p. 162.
Neurovegetative Hemoptysis. A. Hernández Diaz.—p. 163.
*Treatment of Neuro-Anemic Syndrome in Pernicious Anemia by Vitamin B₁ (Aneurin). F. Sciclounoff and M. Naville.—p. 166.

Vitamin B₁ in Neuro-Anemic Syndrome of Pernicious Anemia.—According to Sciclounoff and Naville, the cure of pernicious anemia is not always accompanied by the disappearance of the neurologic complications. They administered thiamine chloride to thirteen patients with the cases the erythrocytes of pernicious anemia. In the majority of the cases the erythrocytes had reached values of 5 million and up and yet the neurologic symptoms had not been ameliorated. The results obtained by the authors indicate that vitamin B₁ can ameliorate and often cure the neurologic disturbances. However, the therapeutic effects are not in proportion to the gravity of the clinical symptoms; besides grave cases, which are completely and quickly improved, there are cases with mild clinical symptoms which are only slightly improved or which are completely refractory. The favorable effects become manifest by improvement in the motility and quickly. The abolished reflexes may cease completely and quickly. The painful paresthesias often cease in eight of the thirteen cases the results were favorable, in five the treatment failed. The daily doses varied between 4 and 10 mg. The duration of the treatment was usually around three weeks, although the patients were often improved after the first week.

Revista Médica de Rosario, Rosario de Sante Fe

30:1-140 (Jan.) 1940. Partial Index

*Sulfanilamide in Otitis Media. D. R. Imhoff.—p. 28.
Prolonged Protamine Zinc Insulin Treatment of Diabetes Mellitus. O. Vila.—p. 71.
Sulfanilamide in Otitis Media.—Imhoff administered sulfanilamide to eight children suffering from acute suppurative otitis media complicated by unilateral or bilateral mastoiditis. The patients were about to be operated on because treatment with vaccines, stock vaccines, proteins and shock methods had failed and the x-ray examinations indicated the existence of a mastoiditis. Neither the dose nor the duration of the treatment

is specified. The earache and the pain over the mastoid, the headache and fever diminished early in the course of treatment and disappeared in from ten to twenty days. Discharge from the ear diminished early and stopped altogether in from twenty to thirty days. Otoscopic examination performed before and after administration of sulfanilamide demonstrated the disappearance of the local edema, congestion and infiltration of the tympanic membrane and healing of the perforation of the membrane. Normal hearing returned in all of the cases. The author believes that this treatment is indicated in acute cases in which operation is indicated but not in the presence of fulminant general and local symptoms which call for an emergency operation.

Archiv f. exper. Pathologie u. Pharmakologie, Berlin 194:1-132 (Dec. 14) 1939. Partial Index

- So-Called Sulfhemoglobin. F. Jung.—p. 16.
Significance of Cardiac Blood Vessels for Regulation of Blood Pressure. T. Gotsev.—p. 31.
Decomposition of Oxytocin and Vasopressin in Vitro. Mathilde Christlieb.—p. 44.
Changes in Glycogen Content of Heart as Sign of Cumulative Effect of Digitalis. F. Hahn.—p. 62.
Significance of Connection Hypophysis-Diencephalon for Elimination of Melanophoric Hormone Following Administration of Porphyrin. W. Rodewald.—p. 74.
*Estrogenic Action of Porphyrins. W. Rodewald.—p. 76.
Chemical Stimulation of Cells on Fibroblastic Cultures. W. Heubner and Emma Schreiber.—p. 78.

Estrogenic Action of Porphyrins.—Rodewald pointed out in earlier reports that injection of porphyrins (hemoporphyrin and protoporphyrin) stimulated the hypophysial secretion of melanophoric and gonadotropic hormones. Studies undertaken to determine whether porphyrin influences other parts of the incretory system demonstrated that the injection of porphyrin into castrated mice elicits estrus. From a series of experiments on castrated mice, with injection of protoporphyrin and hematoporphyrin, the author concludes that estrus can be elicited in castrated female mice by means of porphyrins. When large doses were given it was observed that the estrus persisted even after the injections of porphyrin were discontinued. The author suggests that the estrogenic action is probably not exerted by the porphyrin itself but that porphyrin activates an estrogenic substance in the organism.

Archiv für klinische Chirurgie, Berlin 197:511-898 (Jan. 3) 1940. Partial Index

- Diaphragmatic Fractures. F. Jaeger.—p. 511.
*Perforated Gastric Ulcer. F. Jaeger.—p. 558.
Innervation of Sweat Glands and Significance of Peripheral Sympathetic Cell Network. F. Schörcher.—p. 614.
Medial Fractures of Neck of Femur by Muscular Traction and Their Prevention During Metrazol Therapy of Schizophrenia. V. Struppler.—p. 628.
Suppuration of Knee Joint. G. Maurer.—p. 639.
Traumatic Changes on Head of Radius. H. Ehler.—p. 648.
*Treatment of Burns at Surgical Clinic in Munich. G. Pöhlmann.—p. 666.
Suggestion for Applying Lateral Traction in Treatment of Fracture. K. Stübinger.—p. 731.
Nutritional Treatment of Surgical Tuberculosis. A. Siller.—p. 735.
*Experiences with Chronic Subdural Hematoma. F. Jaeger and U. Handfest.—p. 742.
Treatment of Gunshot Injury with Missile Remaining in Brain. V. Struppler.—p. 758.

Perforated Gastric Ulcer.—According to Jaeger the incidence of perforated gastric ulcer has been greater at the surgical university clinic in Munich than in other surgical clinics, 320 cases having been treated during the years 1921-1938 inclusive. The higher incidence during the last six of the eighteen years confirms reports from other countries, which indicate a rapid increase in gastric and duodenal perforations during the last two decades. The more frequent recognition by improved diagnostic methods might account for the increase. The comparatively higher incidence of gastric perforations in the Munich region is probably due to meteorologic and dietetic factors. Jaeger emphasizes the importance of highly seasoned foods and of alcohol. Simple suture of the perforation gives satisfactory results in many cases. Resection is done later in some of these cases. The mortality rate depends mainly on the time that elapses between perforation and operation. The quantity and condition of the escaping gastric contents are of

importance. The author believes that trauma of the type caused by heavy lifting and abnormal increase in the abdominal pressure cannot cause a perforation. In the case of a direct trauma to the abdominal wall, perforation of an ulcer is possible the same as injury to the intestine. The mobility of the stomach and the intestine or their fixation by adhesions, as well as fulness of the stomach at the time of the trauma, play a part. If perforation of the ulcer becomes manifest immediately after a trauma, it must be regarded as a contributing factor. Simple suturing is the simplest and least dangerous operation for the treatment of perforation. However, in view of the fact that a small percentage of the patients treated by simple suture are subject to recurrence, the author feels that in young persons with large callous ulcers, whose general condition is favorable, resection should be done immediately. If the general condition does not justify an immediate resection, a simple suture should be practical. Such patients must be kept under observation so that a secondary operation, when necessary, can be done at the most opportune time. Seventy per cent of the ulcers closed by suture remained cured.

Treatment of Burns.—Pöhlmann states that in arriving at the cause of death from burns it is necessary to differentiate between the deaths taking place within the first six hours, those taking place from six to forty-eight hours after, and the late deaths which occur after the forty-eight hour period. He thinks that shock can be held responsible only for the early deaths, whereas all later deaths must be ascribed to changes in various organs and to the absorption of toxic substances. Measures must be instituted to counteract the pain and the shock, to increase the circulating quantity of the blood, to combat the deficiency in sodium and chloride and to support the elimination of toxic substances. Pöhlmann believes that tannic acid treatment meets all the requirements of a good method in that it prevents absorption, alleviates the pain, exerts an antiseptic action, prevents loss of plasma and insures undisturbed cure. He employed the method of "brushing" in eighteen of the fifty-nine cases. Tannic acid treatment is to be preferred in the extensive but not deep burns and in the presence of multilocular burns, whereas brushing is recommended in the burns that cover small areas, particularly if they go comparatively deep. Exceptions are deep injuries, which, as a result of their peculiar localization, provide unfavorable anatomic conditions for brushing. In twenty-seven cases the author applied silver foil after the removal of blisters and shreds of epidermis. The method can be employed with or without brushing. In shallow burns of the second degree the silver-foil treatment, without previous brushing, is excellent. In deep burns of the second degree, however, silver-foil treatment did not prove as satisfactory without previous brushing. In deep burns of the second degree and in third degree burns it is advisable to combine the silver-foil treatment with brushing. The application of ointments and powders was found to be unsatisfactory. It has been recognized recently that the protoplasmic shock is of great importance and that the increased permeability of the capillaries can be corrected by the administration of adrenal cortex extract and of vitamin C.

Chronic Subdural Hematoma.—Jaeger and Handfest state that the description of the symptomatology of subdural hematoma by Cushing has never been surpassed. Diagnosis of subdural hematoma should be considered whenever severe headaches and a state of confusion develop in persons who have sustained a cranial trauma. The authors report fourteen cases in which operation was performed at their clinic in the course of the last two years. All of the patients recovered and regained their working capacity. The authors believe that the concepts of commotio, contusio and compressio cerebri are not adequate as a basis for the diagnosis and therapy of traumatic intracranial hemorrhage. Aside from the fact that these conditions may exist simultaneously or follow one another, they become complicated by edema, swelling and shock. The classic picture of commotio cerebri caused by rupture of the median meningeal artery is encountered rarely. An exact diagnosis of craniocerebral injuries requires careful neurologic examination, roentgenoscopy, observation of the pulse, the blood pressure, respiration and temperature, spinal puncture and examination of the cerebrospinal fluid. In obscure cases exploratory trephining

CURRENT MEDICAL LITERATURE

Zeitschrift für Hygiene und Infektionskr., Berlin 122:249-376 (Dec. 21) 1939. Partial Index

- Antagonistic Action of *Bacillus Coli* Against Dysentery Bacilli. R. Maner.—p. 249.
Reactivity of Disinfectants Containing Chloride Against Substrates Containing Nitrogen with Special Consideration of Azochloramide. R. W. Vierthaler and H. Gebauer.—p. 281.
Interferometric Studies on Drinking Water. B. Schmidt.—p. 290.
Transformation of Flat Form of *Kruse-Sonne* Bacteria into Round Form. K. Roelcke and W. Bartram.—p. 295.
Permeability of Hematocerebrospinal Barrier. U. Kottmann.—p. 304.
Studies on Allergy: II. Relations Between Experimental Bronchial Asthma and Weather. R. Preuner.—p. 320.
*Increase of Tularemia in Central Europe. H. J. Juszat.—p. 352.

should be resorted to more often than it has been. In addition to clarifying the diagnosis, trephining offers therapeutic possibilities. The subdural hematomas can frequently be suctioned off and flushed through the trephine opening. Suctioning off is the method of choice in the chronic cases of subdural hematoma.

Klinische Wochenschrift, Berlin 19:49-72 (Jan. 20) 1940

- Adrenal Glands and Pregnancy. R. Elert.—p. 49.
Excretion of Porphyrin in Dermatoses. C. Carrié.—p. 54.
Fat Reabsorption Dysfunction: Case. F. Heni.—p. 56.
*Blood Serum Sedimentation Test for Carcinoma. K. Ko.—p. 60.

Blood Serum Sedimentation Test for Carcinoma.—Ko applied Serény's method of measuring the reaction of heat-coagulated blood serum to sodium hydroxide, after elimination of the erythrocytes, to 150 persons. Ten were healthy controls and 140 presented various diseases, including twelve cases of gastric and duodenal ulcers and seventeen cases of carcinoma. The author's special interest was the efficacy of this method in detecting early carcinoma. The results for the controls were found to lie within the borderline values set up for this method. The author's investigations showed that blood serum sedimentation was accelerated in gastric and duodenal ulcers after severe hemorrhage, in carcinomas with cachexia (eight cases), in grave pneumonias, in nephrosis and in cardiac decompensation. In nearly all these cases a diminution in the albumin content of the blood serum and in the albumin-globulin quotient could be noted. Further tests with distilled water dilutions showed a close connection between blood serum sedimentation and blood serum albumin. No definite parallelism was found, for the most part, between the blood serum sedimentation reaction and the erythrocyte sedimentation rate. In certain diseases acceleration was observed in both sedimentation tests; contradictory results were obtained in others. The author concludes that repeated tests are required to distinguish diagnostically between gastric ulcers and gastric carcinomas, tests conditioned on the subsequent behavior of the initial acceleration, which in turn depends on the diminution of albumin content of the blood serum. Hence the blood serum sedimentation method can hardly be counted on as a helpful procedure in the early diagnosis of malignant tumors.

19:73-96 (Jan. 27) 1940

- Reactions of Peripheral Circulation in Man. F. Gross, K. Matthes and H. Göpfert.—p. 73.
Pulmonary Changes Due to Metrazol Shock. A. Jarisch and H. Thoma.—p. 76.
*Morphologic Lesions of Liver and Kidney and Hepatorenal Insufficiency After Burns. K. H. Zinck.—p. 78.
Vitamin C Deficiency Caused by Exclusive Meat Diet: Case. W. Rudolph.—p. 84.
Origin and Clinical Significance of Impure First Heart Sounds. H. Koizumi.—p. 85.

Hepatorenal Insufficiency After Burns.—Zinck selects a number of cases in which cutaneous burns ranged from 20 to 90 per cent of the entire surface of the skin and deaths occurred between seven hours and twenty-six days subsequently, in order to present his conclusions on the damage done by extensive burns to the liver and kidney and on the ensuing hepatorenal insufficiency. He found morphologic evidence of capillary insufficiency after a few hours and a more or less pronounced and extensive necrosis in the central and intermediate portions of the liver as the result of intoxication caused by the disintegration of the albumin. Especially in children he noted disorganization, brown atrophy and incipient striated degeneration of the parenchyma. Kidney lesions were less marked and affected the glomeruli and the tubules. The pathology of the glomeruli was characterized by interstitial edema and albumin exudates. Hypochloremic calcifications leading to sclerosis of the organs. The author stresses the pathologic-anatomic significance of extensive body burns, admits the difficulty of judging the metabolic implications of morphologic changes in connection with the question of the residual nitrogen. The absence of icterus from the clinical picture may be explained as due either to early death which prevents the biliary alteration affecting the skin or to the damage done to the gallbladder and the reticulo-endothelial system at the outset.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam 84:681-788 (Feb. 24) 1940. Partial Index

- Injuries of Middle and Internal Ear by Cardlessness. A. P. H. A. de Kleyn.—p. 682.
Premature Detachment of Placenta with Anuria. J. Groen and G. A. Lindeboom.—p. 688.
*Indications for Intravenous Strophanthin Therapy. L. M. ter Horst.—p. 697.
Influence of Virulence and Origin of Vaccine Virus. J. D. Verlinde.—p. 702.

Indications for Intravenous Strophanthin Therapy.—Intravenous strophanthin therapy, according to ter Horst, is indicated not so much by definite heart disease or by the degree of insufficiency but rather by the character of cardiac action as determined by disproportion between dilatation and hypertrophy of the left ventricle. In all disorders in which there is a dilated left ventricle and an inadequate hypertrophy, that is in conditions in which digitalis is generally ineffective, the intravenous administration of strophanthin is effective. Horst employed strophanthin in a number of cases. The disproportion between dilatation and hypertrophy of the left ventricle can be demonstrated by roentgenologic and electrocardiographic studies. The quantity of strophanthin injected daily varies between 0.2 and 0.3 mg. (and in exceptional cases 0.35 mg.). It is advisable to begin with 0.2 or 0.25 mg. and, if necessary, increase this dose. After three or four days the treatment is interrupted for one day. Before the strophanthin therapy is begun, it is necessary to ascertain that the patient is not under the influence of digitalis. After improvement has been obtained, the treatment can be continued by the oral administration of digitalis.

Acta Tuberculosea Scandinavica, Copenhagen

14:1-198 (Nos. 1-2) 1940

- Tuberculosis and Constitution. A. Kristenson.—p. 1.
Comparison Between Citrate Sedimentation Reaction and Heparin Sedimentation Reaction in Pulmonary Tuberculosis. K. A. Vannfält.—p. 37.
Clinical Tuberculosis and Tuberculin Reactions Among Students in Uppsala. H. Sjövall.—p. 100.
Frequency of Bovine Infection Among Tuberculous Patients in Denmark. K. A. Jensen, V. Lester and K. Tolderlund.—p. 125.
*Erythema Nodosum and Intrathoracic Tuberculosis. G. L. Ingebrigtsen.—p. 158.
*Sulfapyridine Treatment in Experimental Tuberculosis. K. E. Birkhaug.—p. 180.

Erythema Nodosum and Intrathoracic Tuberculosis.—Ingebrigtsen states that most investigators in the Scandinavian countries are of the opinion that a close relationship exists between erythema nodosum and tuberculosis. Observations formerly regarded as an argument against the tuberculous genesis have been explained in a manner so that they no longer contradict the theory of a relationship between erythema nodosum and tuberculosis. The epidemic occurrence of erythema nodosum has, in a number of cases, been traced to a tuberculous source of infection. Relapses of erythema nodosum and its occurrence after acute infectious diseases have lost their force as an argument against the tuberculous genesis since Wallgren formulated the theory of a "postprimary erythema nodosum," according to which erythema may develop during fluctuations in the allergy of a person already infected with tuberculosis at the time when a temporary anergy is again replaced by allergy. The anergy may be traceable to any of a number of infections, while it can be observed that erythema nodosum develops during convalescence, when the tuberculous allergy returns. Nearly all investigators, however, admit that nontuberculous forms of erythema nodosum actually occur. In order to investigate the relationship between erythema nodosum and intrathoracic tuberculosis, the author studied approximately 9,000 dismissal records of a tuberculosis sanatorium in northern Norway. In 417 the history disclosed erythema nodosum. Since the author is concerned chiefly with the patients in whom erythema nodosum was the first symptom of tuberculosis, he disregards three cases in which the tuberculin reaction was negative, thirteen in which a tuberculous process existed previous to the erythema nodosum and six in which it was not known at what age erythema nodosum developed. In fifteen of the remaining 395 cases intrathoracic tuberculosis could not be demonstrated but in the remaining 380 there was an active intrathoracic tuberculosis. An analysis of the cases in which erythema nodosum was the first symptom of intrathoracic tuberculosis corroborated its predominance in women, for 83 per cent of the patients were of the female sex. The majority of the patients (five eighths) were of the age group between 15 and 25. The records of 240 of the patients indicated the months in which the erythema nodosum became manifest. These records indicated seasonal fluctuations with peaks for December and May and with the lowest figures during the autumn. The curve of the seasonal fluctuations of erythema nodosum resembles the curve for pleurisy, for the onset of any death from tuberculosis and for tuberculous meningitis. The seasonal fluctuations of the author's material (northern Norway) were greater than in a comparative material from southern Norway. Erythema nodosum during childhood is less often followed by pulmonary tuberculosis than is erythema nodosum in adults. Two thirds of 190 cases of phthisis developed in the course of the first three years after the erythema nodosum.

Sulfapyridine Treatment in Experimental Tuberculosis.—According to Birkhaug, chemotherapy of tuberculosis is handicapped by the formation of fibrotic and avascular tissue about the ulcerations, abscesses and cavities, because circulating antibacterial drugs are incapable of penetrating such dense and avascular tissues. Nevertheless the great therapeutic successes obtained with the sulfanilamide compounds in various bacterial infections led to experiments with these compounds in tuberculosis. The author reviews earlier investigations by Rich and Follis and his own experiments with a soluble azo-sulfamide. Studies in vitro on various sulfanilamide preparations disclosed the superior antimycobacterial properties of sulfapyridine. This compound was consequently administered to

ninety-six guinea pigs infected with tubercle bacilli. Hematologic, bacteriologic and pathologic observations demonstrated that the daily oral administration of from 300 to 600 mg. of sulfapyridine per kilogram of body weight produced a significant retarding influence on the development and progress of tuberculosis induced in guinea pigs with relatively large doses of human tubercle bacilli. The antimycobacterial effect seems to be directly proportional to the administered dose and to the concentration of the sulfapyridine in the blood and body fluids. However, neither the virulence nor the tuberculogenic action of tubercle bacilli is altered by the prolonged action of sulfapyridine in vitro or in vivo. This partial chemotherapeutic success in highly susceptible guinea pigs suggests that sulfapyridine might be helpful in miliary forms of tuberculosis and in tuberculous meningitis by restricting or preventing fresh dissemination of tubercle bacilli. In chronic forms of the disease the treatment seems doomed to fall short of the ultimate goal.

Nordisk Medicin, Gothenburg

5:1-40 (Jan. 6) 1940. Partial Index

Norsk Magasin for Lægevidenskapen

- Two Cases of Low Vaginal Atresia. T. Dahle.—p. 9.
*Spondylitis Ankylopoietica. E. Buchmann.—p. 12.

Spondylitis Ankylopoietica.—Buchmann says that, of 200 patients with this disorder in London examined and followed by him, many were men aged from 18 to 25 who had been active in athletics. The etiology of spondylitis ankylopoietica is unknown, but it is probably infectious. He calls attention to the general prespondylitic symptoms. Change in the sacro-iliac joints always occurs first, often long before other clinically demonstrable symptoms from the back, as has been roentgenologically established in more than 400 cases; bilateral sacro-iliitis is pathognomonic for the disorder (Scott). In the prespondylitic stage there is reduced calcium content around the sacro-iliac joint, the fissure seems wider, the contour is somewhat blurred, and small round clarifications are often seen. The prespondylitic symptoms usually appear at the age of from 12 to 18, may last from weeks to months and are intermittent, with free periods of from half a year to a year. The pain is often variable in character and localization. Gradually general symptoms set in: sleeplessness, loss of weight and anemia. The sedimentation reaction is increased. There are periods of fever. In about 10 per cent of the cases there is iritis. Then the localized symptoms develop. In the early stages diagnosis is difficult or impossible except by x-ray examination. Tuberculosis of the sacro-iliac joint has a shorter course, is generally unilateral, often with localized pain over the joint, and may give abscess formation. The prognosis in spondylitis ankylopoietica is unfavorable because of the tendency to progression. The disease is not fatal in itself, but death often results from pulmonary complications. The author considers Scott's wide field roentgen treatment the most successful both during the early stage and as a palliative treatment in the late chronic stage.

Hygieia

- Mild Chronic Encephalitis. E. Rydén.—p. 25.
*Rupture of Gallbladder with Fatal Intraperitoneal Hemorrhage. E. Eriksson.—p. 30.
Attempt at Explanation of Roentgen Picture in Acute and Subacute Bone Atrophy: Preliminary Report. G.-A. Landoff.—p. 33.

Rupture of Gallbladder with Fatal Intraperitoneal Hemorrhage.—Eriksson cites the three cases reported to date in which a fatal intraperitoneal hemorrhage or one menacing life originated from infarction and rupture of the gallbladder. In two cases there was cholelithiasis. The third instance resembles his own case, which is described in detail. Disease of the pancreas together with cholelithiasis seemed probable. Aggravation occurred apparently in connection with a unilateral pulmonary complication. Rapid aggravation, interpreted as a further complication from a heart insufficiency, dominated the final picture. The absence of more marked symptoms of progressive internal hemorrhage is ascribed to the abundant administration of fluids and stimulation during the course. There were no clinical symptoms such as usually indicate active therapy.

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ANOREXIA NERVOSA OR HYPO- PITUITARISM?

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AND
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BOSTON

In the nebulous zone where endocrinology shades into psychiatry as at the climacteric, the puerperium and adolescence, no more elusive figure is to be encountered than the syndrome variously called anorexia nervosa, hypopituitarism or incipient Simmonds' disease.

The following example attempts to portray the experience of the clinician faced with this syndrome, one which is evidently appearing with greater frequency:

The patient is an adolescent girl whose mother states that the girl has been quite well until three months before, when she suddenly, for no apparent cause, completely lost her appetite. Since then the hitherto joyous child has become difficult, shy, restless, even sleepless. Coincident with this change in her personality there has been a progressive loss of weight until she now looks "like a skeleton draped in skin" and her chubby girlish features have changed into an awkward ugliness. Her menstrual periods have ceased. She shivers in winter unless dressed in her warmest clothes. Her whole family has tried to coax her to eat with no success, the only result being tears and resentment on the part of the girl, who insists she just cannot eat and that even the sight of food hidden in forcing food has caused vomiting. The mother was alarmed when she found remnants of food hidden in strange places, food which she supposed her daughter had eaten. Reproaches were of no avail. It seemed unbelievable that such a frail, emaciated person could not only live on a few sips of tea and milk and some fruit but even be on her feet all day, busy around the house and not visibly tired or weak.

Such is the mother's story. As to the daughter, she looks as though she were wasted away by a severe consumptive illness, all her ribs and pelvic bones being visible, her skin dry and cold, her pulse alarmingly slow, her blood pressure very low, her temperature subnormal; and yet careful examination reveals no other abnormality than the extreme emaciation. The patient, in a sullen, tense mood, insists that there is nothing wrong with her and asks only to be left alone.

What are we dealing with? A severe metabolic disorder? Advanced pulmonary tuberculosis? A psychosis? When the patient is placed under observation

in a hospital it is discovered that her basal metabolic rate is astonishingly low, possibly as low as 40 per cent, that her heart rate per minute is in the forties, her fasting blood sugar between 60 and 70 mg. per hundred cubic centimeters, her dextrose tolerance curve of a peculiar flat, slowly rising type, her urine scanty but otherwise normal, her blood perhaps showing a moderate but not striking hypochromic anemia. All efforts to give her a high caloric diet are frustrated because she won't take the food; all tonics, iron and thyroid seem to be of no avail. Finally we consult a neuropsychiatrist, who studies her emotional life.

Does he succeed in getting at the root of the evil? Does the ugliness of her body stimulate her morbid dislike of food, but suddenly, maybe on a given day, she begins to eat, often ravenously. The change in her whole attitude is amazing. Half a year later her mother reports that her daughter is again her former self physically and mentally; that she has gained 40 pounds (18 Kg.), that her menstrual periods have become normal and that she now enjoys life and eats anything and everything. What brought about this miraculous cure?

Our purpose in this report is to present and discuss three such cases with this strange syndrome which were observed at the Diagnostic Hospital of the Boston Dispensary.

Almost 250 years ago Morton¹ described a few cases of such striking similarity to the picture just sketched that it seems reasonable to assume that he was dealing with the same disease. Translated, his salient sentences read as follows: "The atrophica or phthisis nervosa is a consumption of the body without any sign of fever, cough or dyspnea, but accompanied by an inversion of the appetite and the digestion until finally there results a feebleness and torpor of the whole body which increases from day to day." (Atrophica seu phthisis nervosa est consumptio corporis absque ulla insigni febre, vel tussi, vel dyspnoea; verum cum appetitus et digestionis eversione eam comitante: unde insequitur totius corporis languor et marcor indies increscens.)

As to etiology, he made the following remarks: "The constant cause of this disease seems to me to be of nervous nature, an unnatural state of the mind, originating from an inverted nervous tonus whence I am used to call it phthisis from its bodily aspect." (Causa continuens hujus morbi mihi videtur esse in genere nervosa, a praeternaturali statu spiritum animalium et a tono nervorum everso proveniens inde eam vocare soleo Phthisin in habitu corporis.)

Of one patient, an 18 year old girl, he says "I can't remember having ever seen in my whole practice any

¹ Morton, Richard:
London, S. Smith, 1689.

Phthisiologia, seu exercitationes de phthisi,

living person reduced to such a state of marasmus, like a skeleton draped with skin." (*Numquam aliquem ita marasmo confectum [sceleti instar cuti vestiti] adhuc viventem in toto praxi mea observatum memini.*)

Another patient, a 16 year old boy who studied too much, "fell into almost total anorexia and then into universal atrophy." (*Incidit in inappetentiam fere totalem et inde in atrophiam universalem.*)

About a hundred years later, in 1873, Sir William Gull and Ernst Charles Lasègue reported their studies of patients with the same syndrome, giving it various names. Gull² used the expression *anorexia nervosa* (*apepsia hysterica*) and believed that the want of appetite was due to a morbid mental state. Discussing his paper, a physician told of a patient of his own who, as he put it, resembled a dried mummy more than a living being. In 1888 Gull³ published the photographs of such an emaciated patient, who was a plump, healthy girl until she began, without apparent cause, to evince a repugnance to food. She insisted on walking to the office, though an object of remarks by the passers-by. Her respiratory rate was from 12 to 14 per minute, her pulse rate 46 per minute, her temperature 97 F., her weight 4 stone 7 (61 pounds, or 28 Kg.), her height 5 feet 4 inches (163 cm.). The photographs show the striking change after she became well again; she had no trouble at all and was eating everything. In Gull's opinion the cause lay in a perversion of the "ego." He was also impressed by the patient's persistent wish to be constantly on the move, even though the emaciation was so great. Lasègue,⁴ in a fine character study of a hypothetical case with "hysterical anorexia," remarked that "we are defective in expressions for the degree or varieties of inappetence—the poverty of our vocabulary corresponding to the insufficiency of our knowledge." Concerning the strange attitude of these patients toward food, he said "I have seen one chewing morsels of rhubarb, whom no consideration would have induced to taste a cutlet." Stephens⁵ was probably the first to report a fatal case with necropsy. The picture of this 16 year old girl is truly shocking. Her height was 5 feet 4 inches (163 cm.), her body weighed 49 pounds (22 Kg.); ten months previously she had been a remarkably well developed, plump and healthy looking girl. The body showed good teeth (an important fact in view of the cases of pituitary cachexia, or Simmonds' disease, which we shall discuss later), and there was not a trace of fat except in her breasts, which stood out boldly. The brain was normal throughout (no mention was made of the pituitary gland). The weights of the organs are interesting: heart 4 ounces (113 Gm.), liver 23½ ounces (666 Gm.), pancreas 1½ ounces (43 Gm.), spleen 1¼ ounces (35 Gm.), adrenals each one-fourth ounce (7 Gm.), and uterus and ovaries together seven-eighths ounce (25 Gm.).

In more recent times Déjerine and Gauckler⁶ described cases of "mental anorexia." In their opinion this anorexia is of purely emotional origin. They found the cases to be extraordinarily numerous. They tried to differentiate between primary and secondary anorexia and stated that patients with "mental anorexia" might die of inanition. The therapeutic and prognostic difficulties in a syndrome of such doubtful etiology were

admitted in the remark that there was absolutely no way of telling whether a patient would or would not respond to treatment.

Following these papers, full of keen observations and wise remarks, come the days of experimental medicine when endocrinology began to occupy the minds of many who were working on this special problem, until the psychologic side was in danger of being neglected.

Before Simmonds,⁷ in a paper entitled "Pituitary Atrophy With Fatal Outcome," made his all important contribution, Falta⁸ claimed to have made the diagnosis of pituitary dystrophia clinically, which was later confirmed by autopsy. The pathologist Simmonds⁹ reported in several papers, dating from 1914, his observations on cases of what is now known as pituitary cachexia, or Simmonds' disease. According to him the disease (which now goes by his name) is characterized by chronic cachexia, senile appearance, wrinkled facial skin, breaking off of the teeth, disappearance of the menses, loss of axillary and pubic hair and striking diminution in the size of the inner organs (splanchnomicry). He associated these features with atrophy (fibrosis, necrosis) of the anterior lobe of the pituitary gland. He favored the embolic origin of the pituitary atrophy and pointed out that in three of his cases the disease began at the puerperium. However, he saw instances in which the pituitary atrophy had been brought about by a tumor pressing on the gland. It is important to note that Simmonds' patients were mostly women of child-bearing age; also that some of the characteristics he described, namely the breaking off of teeth and loss of axillary and pubic hair, are not mentioned among the detailed descriptions of the cases of anorexia nervosa. This suggests that Simmonds' disease and anorexia nervosa are not one and the same.

Before discussing this question, however, it would be well to mention some of the numerous articles following Simmonds' original publication, particularly some of the more recent ones, in which are analyzed nonfatal cases of what appeared to be either anorexia nervosa or pituitary cachexia. Moeller¹⁰ gave a detailed report of his patients with anorexia nervosa who showed bradycardia, arterial hypotension, hypoglycemia, low basal metabolic rate, amenorrhea, hypertrichosis and obstipation. He discussed the influence of starvation on the function of endocrine glands. Graubner¹¹ collected thirty-three cases of pituitary cachexia from the literature and added one of his own. Zondek and Koehler¹² reported cases of cerebral-pituitary "mager-sucht," an untranslatable word meaning the contrary of obesity but with implied morbidity. Thannhauser¹³ discussed the problem of "endogenous leanness" from a broad standpoint, coming to the conclusion that the body build was more important than the determination of oxygen consumption and specific dynamic action in differentiating the various types of endocrine leanness. He separated cases of leanness with thyroid, adrenal and

7. Simmonds, Morris: Ueber Hypophysenschwund mit tödlichem Ausgang, Deutsche med. Wehnschr. 40: 322, 1914.

8. Falta, W.: Die Erkrankungen der Blutdrüsen, Berlin, Julius Springer, 1913, p. 256.

9. Simmonds, Morris: Ueber Kachexie hypophysären Ursprungs, Deutsche med. Wehnschr. 42: 190, 1916; Atrophie des Hypophysenvorderlappens und hypophysäre Kachexie, ibid. 44: 852, 1918.

10. Moeller, E.: Quantitative Verhältnisse des Stoffwechsels bei Unterernährung, illustriert durch vier Fälle von nervöser Anorexie, Klin. Wehnschr. 3: 1575, 1924.

11. Graubner, W.: Die hypophysäre Kachexie (Simmonds'sche Krankheit) Ztschr. f. klin. Med. 101: 249, 1925.

12. Zondek, H., and Koehler, G.: Ueber zerebral-hypophysäre Mager-sucht, Deutsche med. Wehnschr. 54: 1955 (Nov. 23) 1928.

13. Thannhauser, S. J.: Endogene Magerkeit, in Verhandlungen der Gesellschaft für Verdauungs und Stoffwechselkrankheiten, IX. Tagung in Berlin, 16. bis 18. Oktober 1929, Leipzig, Georg Thieme, 1930, pp. 96-116.

2. Gull, W. W.: Anorexia Nervosa, Tr. Clin. Soc. London 7: 22, 1874; Meeting of the Clinical Society, M. Times & Gaz. 2: 534, 1873.

3. Gull, William: Anorexia Nervosa, Lancet 1: 516, 1888.

4. Lasègue, E. C.: On Hysterical Anorexia, M. Times & Gaz. 2: 265, 1873.

5. Stephens, Lockhart: Case of Anorexia Nervosa: Necropsy, Lancet 1: 31, 1895.

6. Déjerine, J., and Gauckler, E.: Les manifestations fonctionnelles des psychoneuroses, Paris, Masson & Cie, 1911, p. 6.

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pituitary signs and subdivided the pituitary form into three groups. His atrophic type would correspond to Simmonds' disease. In his textbook¹⁴ he gave well illustrated descriptions of the various types of pituitary leanness, stressing again the morphologic characteristics of the patients as indicative of the underlying endocrine disorders. Reye and Schürmann¹⁵ presented a case in which autopsy was performed in 1929 after treatment with "fresh anterior pituitary gland and later with Praephyson" had been administered for eleven years. The autopsy showed complete disappearance of the anterior pituitary. There was no definite evidence of embolism or thrombosis. The authors assumed an "idiopathic" disappearance of the glandular portion of the hypophysis. Venables¹⁶ contributed a clinical paper with vivid descriptions of some cases of anorexia nervosa and with some keen comments on the psychologic problem. Conybeare,¹⁷ under the title "A Fatal Case of Anorexia Nervosa," described a woman of 42 who had been told to fast, then lost her appetite and finally died of an infection. The brain was not examined. Josefson¹⁸ gave the details of a case of cerebral "magersucht" which was strikingly similar to the picture of pituitary cachexia; autopsy revealed pinealoma and sclerosis of the hypophysis. Grafe¹⁹ in his textbook gave a classification of malnutrition and discussing the influence of hunger on the oxygen consumption, pointed out that not all patients, even those with the most striking cachexia due to starvation, have a low basal metabolic rate. Steinitz²⁰ expressed the opinion that pituitary cachexia was not necessarily due to a destruction or disappearance of the anterior lobe but often rather to diminished function in cases with reparable changes. He thought that there was a predisposition to the disease not only in the puerperium but also in adolescence. Calder²¹ wrote one of the first papers on the subject in this country under the heading of anterior pituitary insufficiency (Simmonds' disease). He pointed out that "the general muscular debility, gastrointestinal atony, vasomotor weakness and decrease in the basal metabolic rate, present a striking similarity to the phenomenon of hibernation which long has been considered to be under the control of the pituitary gland." He also gave an abstract of all cases of "anterior pituitary insufficiency" up to 1931 (seventy cases) and emphasized the disturbance of the carbohydrate metabolism in these cases. Striker²² reported a case of Simmonds' disease with recovery, a girl of 17 weighing 22 Kg., her basal metabolic rate being -48 per cent. Prominent symptoms were abdominal cramps and addiction to cathartics. Brougher²³ observed a 63 year old man whose pituitary cachexia was considered to be due to a chromophobe adenoma. Antuitrin injections were followed by "very definite

improvement." Silver,²⁴ suggesting the name cachexia hypophyseopriva, said that the disease had been almost completely ignored in the American literature. His patient, a 53 year old woman, had lost 53 per cent of her body weight before she died. Grote and Meng²⁵ reported two typical examples, asserting that one patient was cured by insulin and the other by psychotherapy. Von Bergmann²⁶ expressed his disbelief in the so-called primary psychogenic types. He lost one patient with pituitary leanness. The anterior pituitary lobe showed "only slight changes as might be expected in death from starvation." He²⁷ and Sauerbruch strongly recommended implantation of calf hypophysis into the omentum. Schürmann²⁸ thought that in his case the histologic picture of the pituitary did not suffice to explain the cachexia. Veil and Sturm²⁹ found diminution of the blood iodine after hypophysectomy. Weinstein³⁰ reported that from 30 to 35 per cent of the anterior lobe in his case of pituitary cachexia (due to a tumor) was found to be normal histologically. Rose and Weinstein³¹ in another case found atrophy, fibrosis and destruction of the normal architecture in the anterior pituitary, adrenal cortex and thyroid gland. Gunther and Courville,³² having seen at autopsies partial or complete atrophy of the hypophysis without the clinical picture of Simmonds' disease, concluded that some other factors are partially responsible, such as the time element, the existence of just enough tissue to maintain function, or other factors not well understood. Schüpbach³³ warned against insulin treatment. He saw continued improvement in spite of discontinuation of endocrine therapy. He felt that endocrine therapy induced stimulation of function (funktionsbelebung). Wahlberg³⁴ observed a patient who first showed symptoms and signs of hyperthyroidism and obesity and later developed those of hypothyroidism and leanness (tachycardia with a rate of 120 changed to bradycardia with 52). All of his three patients had "Simmonds' disease" with recovery, as did Hawkinson,³⁵ who thought that the syndrome might have been caused by transient functional disorder of the anterior pituitary body as well as by neoplastic involvement. Ryle³⁷ saw fifty-one cases in his consulting practice, only six in hospital practice. He says "We should not search for a solitary causa causans but rather remain constantly alive to the existence of multiple contributory factors." He saw four deaths, two of the fatal cases having been

14. Thannhauser, S. J.: Lehrbuch des Stoffwechsels und der Stoffwechselkrankheiten, Munich, J. F. Bergmann, 1929.
15. Reye, E., and Schürmann, P.: Ueber Simmonds'sche Krankheit. Klin. Wchnschr. 9: 525 (March 15) 1930.
16. Venables, G. F.: Anorexia Nervosa: A Study of the Pathogenesis and Treatment of Nine Cases, Guy's Hosp. Rep. 80: 213 (April) 1930.
17. Conybeare, J. J.: A Fatal Case of Anorexia Nervosa, Guy's Hosp. Rep. 80: 30 (Jan.) 1930.
18. Josefson, A.: Cerebrale Magersucht, Acta med. scandinav. 75: 507, 1931.
19. Grafe, E.: Die Krankheiten des Stoffwechsels und der Stoffwechselkrankheiten, Munich, J. F. Bergmann, 1929.
20. Steinitz, E.: Ueber hypophysäre Kachexie (Simmonds' Disease), Deutsche med. Wchnschr. 58: 1323 (Aug. 19) 1932.
21. Calder, R. M.: Anterior Pituitary Insufficiency (Simmonds' Disease), Bull. Johns Hopkins Hosp. 50: 87-114 (Feb.) 1933.
22. Striker, Cecil: A Case of Simmonds' Disease (Cachexia Hypophyseopriva) with Recovery, J. A. M. A. 101: 1994 (Dec. 1933).
23. Brougher, J. C.: Pituitary Cachexia: Report of Patient Treated with Anterior Pituitary Extract, Endocrinology 17: 128 (March-April) 1933.

24. Silver, Solomon: Simmonds' Disease (Cachexia Hypophyseopriva): Report of Case with Postmortem Observations and Review of Literature, Arch. Int. Med. 51: 175 (Feb.) 1933.
25. Grote, L. R., and Meng, H.: Ueber interne und psychotherapeutische Behandlung der endogenen Magersucht, Schweiz. med. Wchnschr. 64: 137 (Feb. 17) 1934.
26. von Bergmann, G.: Magersucht und Magersucht, Deutsche med. Wchnschr. 60: 123 (Jan. 26), 159 (Feb. 2) 1934.
27. von Bergmann, G.: Magersucht und Magersucht, München. med. Wchnschr. 81: 37 (Jan. 5) 1934.
28. Schürmann, P., in discussion on von Bergmann,²⁶ Wchnschr. 81: 37 (Jan. 5) 1934.
29. Veil, W. H., and Sturm, A.: Die Klinik der Hypophysenkrankheiten, München. med. Wchnschr. 82: 5 (Jan. 3) 1935.
30. Weinstein, A.: Multiglandular Syndromes Resembling Simmonds' Disease, with Case Report, Am. J. M. Sc. 189: 245 (Feb.) 1935.
31. Rose, E., and Weinstein, A.: Hypophysial Cachexia (Simmonds' Disease) with Thyroid and Suprarenal Insufficiency, Endocrinology 20: 149 (March) 1936.
32. Gunther, L., and Courville, C. B.: Hypophyseopriva (Simmonds' Disease) with Atrophy of the Anterior Lobe of the Pituitary Gland, J. Nerv. & Ment. Dis. 82: 40 (July) 1935.
33. Schüpbach, A.: Zur Hormonalen Behandlung der Simmonds'schen Krankheit und verwandter asthenischer Zustände, Schweiz. med. Wchnschr. 66: 1245 (Dec. 12) 1936.
34. Wahlberg, J.: Report of a Case of "Simmonds' Disease," with Recovery, J. Nerv. & Ment. Dis. 82: 166 (Feb.) 1936.
35. Dunn, C. W.: Simmonds' Disease (Pituitary Cachexia), J. A. M. A. 106: 1066 (July 6) 1935.
36. Hawkinson, L. F.: Simmonds' Disease (Pituitary Cachexia), Report of Case in Which Patient Responded to Anterior Pituitary Extract, J. A. M. A. 105: 20 (July 6) 1935.
37. Ryle, J. A.: Anorexia Nervosa, Lancet 2: 893 (Oct. 17) 1936.

labeled psychotic, ". . . and yet some of the psychoneurotics who did well might, I surmise, under adverse circumstances, have drifted as badly." He thought that the reappearance of menstruation was the best criterion of cure. Krause³⁸ expressed the belief that the cachexia of the pituitary insufficiency is due to shrinkage of the adrenal cortex. Seemingly miraculous return of appetite followed injections of adrenal cortex extract. Gallavan and Steegmann³⁹ reported two cases of "Simmonds' disease" with autopsy. Kylin⁴⁰ described fourteen cases in detail with two autopsies. He thinks that the syndrome is the opposite of Cushing's syndrome. He is enthusiastic about implantation of calf hypophysis. Recently in a paper with many photomicrographs Sheehan⁴¹ expressed the opinion that necrosis of the anterior pituitary is relatively frequent in women dying during the puerperium. The necrosis, beginning about the time of delivery, is due to thrombosis of pituitary vessels, not to embolism. Sheehan and Murdock⁴² state that "in patients who have a postpartum necrosis of the anterior pituitary a subsequent pregnancy is possible if genital atrophy has not taken place. Such a pregnancy usually brings great improvement or even complete and permanent cure of the symptoms of pituitary insufficiency." Von Weizsäcker,⁴³ in reporting two well studied cases, stresses the psychologic element. Straube⁴⁴ discusses the treatment. Kunstadter⁴⁵ strangely calls the syndrome "von Bergmann's disease." Stroebe⁴⁶ (von Bergmann's clinic) gives two interesting autopsy reports of cases with late adolescence cachexia and similar postmortem observations. There were no gross anatomic changes in the hypophysis and no necrosis of the anterior lobe as described by Simmonds. He points to the history of the cases as showing an overwhelmingly negative attitude toward life in the beginning of the emaciation. Herrick,⁴⁷ in a recent monograph on the pituitary gland, gives only a brief discussion of the problem. He assumes that Falt's so-called pluriglandular sclerosis is nothing more than pituitary cachexia. The pendulum seems to swing back from overemphasis on the endocrine etiology in a paper by Farquharson and Hyland.⁴⁸ Richardson⁴⁹ reported six cases, one of them fatal, autopsy revealing no essential changes in the pituitary gland; he concluded that Simmonds' disease, in the sense of a destructive lesion of the pituitary body, is rare and anorexia nervosa with the signs of Simmonds' disease much more common.

Within the last year a number of papers on the subject have appeared, a few of which may be mentioned.

38. Krause, F.: Die Erkrankungen des Hypophysenvorderlappens, Klinische Fortbildung, Berlin, Urban & Schwarzenberg, 1937.

39. Gallavan, M., and Steegmann, A. T.: Simmonds' Disease (Anterior Hypophysial Insufficiency). Report of Two Cases with Autopsy, Arch. Int. Med. 59: 865 (May) 1937.

40. Kylin, E.: Magersucht in der weiblichen Spätpubertät, Ein eigenartiges Krankheitsbild sui generis, Deutsch. Arch. f. klin. Med. 180: 115, 1937.

41. Sheehan, H. L.: Postpartum Necrosis of the Anterior Pituitary, J. Path. & Bact. 45: 188 (July) 1937.

42. Sheehan, H. L., and Murdock, R.: Postpartum Necrosis of the Anterior Pituitary: Effect of Subsequent Pregnancy, Lancet 2: 132 (July 16) 1938.

43. von Weizsäcker, V.: Ueber Träume bei sogenannter endogener Magersucht, Deutsche med. Wchnschr. 63: 253 (Feb. 12) 1937.

44. Straube, G.: Zur Therapie der Simmonds'schen Krankheit, Klin. Wchnschr. 17: 1016 (July 16) 1938.

45. Kunstadter, R. H.: Pituitary Emaciation (von Bergmann), Endocrinology 22: 605 (May) 1938.

46. Stroebe, F.: Zum Problem der endogenen Magersucht; abstracted, Zentrall. f. inn. Med. 59: 97 (Feb. 5) 1938.

47. Herrick, W. W.: The Pituitary Gland, Baltimore, Williams & Wilkins Company, 1938, p. 609.

48. Farquharson, R. F., and Hyland, H. H.: Anorexia Nervosa: A Metabolic Disorder of Psychologic Origin, J. A. M. A. 111: 1085 (Sept. 17) 1938.

49. Richardson, H. B.: Simmonds' Disease and Anorexia Nervosa, Arch. Int. Med. 63: 1 (Jan.) 1939.

Sheldon and Young⁵⁰ studied the carbohydrate metabolism in cases of anorexia nervosa. Bruckner, Wies and Laviates⁵¹ state that a satisfactory means of differentiating Simmonds' disease from anorexia nervosa has not yet been established. Morlock⁵² gives details of a young man with the syndrome (it is encountered rarely in the male sex). Plummer and Jaeger⁵³ also describe a male patient with many features of Simmonds' syndrome, complicated, however, by polyuria, optic atrophy and other features due to a glioblastoma multiforme involving the tuber cinereum and adjacent structures. Rahman, Richardson and Ripley⁵⁴ give details of their psychiatric studies in twelve cases.

This review of part of the important literature on the subject makes no endeavor to be complete, leaving out purposely all experimental work as being beyond the scope of this clinical report.

The following three cases were observed at the Diagnostic Hospital within the last few years:

REPORT OF CASES

CASE 1.—P. T., a girl aged 14 years, American of Italian stock, admitted June 12, 1933, because of loss of weight, was referred by Dr. A. F. Bronner and Dr. William Healy of the Judge Baker Child Guidance Center. She stated that in December 1931 she had been told by the school physician that she was overweight. According to the school record she then weighed 120 pounds (54 Kg.), while the average weight for her height would have been 95 pounds (43 Kg.). The mother, however, claimed that she never looked fat but "just right." The girl tried to lose weight by reducing her food intake. Having done so for some time with difficulty, she then in March 1932 lost her appetite completely. When forcing herself to eat, she felt abdominal distress and vomited several times. Whereas she had previously been an active girl, she became lazy and complained of feeling tired. Her weight finally dropped to 72 pounds (33 Kg.), a loss of almost 50 pounds (23 Kg.). She was sent to a sanatorium, where forced feeding for four months resulted in a gain of only 2½ pounds (1 Kg.), which she promptly lost after returning home. She suffered from constipation. Her periods, beginning at the age of 11 years, had been regular for two years until August 1932, when they ceased. Her past and family histories were noncontributory. Her mother appeared high strung. Closer questioning revealed marked antagonism of the girl toward her family and strong emotional conflicts. She felt particularly unhappy at home after her grandmother, to whom she had been very much attached, had left the family in April 1933.

On admission she was extremely undernourished, weighing 76½ pounds (35 Kg.) and measuring 5 feet ¼ inch (153 cm.) in height. Her skin was dark, but this was thought to be a racial characteristic. It was covered with fine fuzzy lanugo hair, particularly on the back and neck but also noticeable on the arms and legs (fig. 1). The skin appeared dry and slightly scaly over the abdomen. There was a normal amount of hair on the scalp; there were thick eyebrows and a distinct mustache; the teeth were fair. The fundi and visual fields were normal; the thyroid gland was not enlarged. The lungs were normal to percussion and auscultation; the heart showed a small absolute and relative dullness. The resting heart rate was 34 per minute; there was a quick rise to over 100, however, even with slight exercise. The electrocardiogram showed no abnormalities except the extreme sinus bradycardia. The blood pressure was 80 mm. of mercury systolic, 60 mm. diastolic. The

50. Sheldon, J. H.: Anorexia Nervosa with Special Reference to Physical Constitution, Lancet 1: 369 (Feb.) 1937. Sheldon, J. H., and Young, F.: On the Carbohydrate Metabolism in Anorexia Nervosa, ibid. 1: 257 (Jan. 29) 1938.

51. Bruckner, W. J.; Wies, C. H., and Laviates, P. H.: Anorexia Nervosa and Pituitary Cachexia, Am. J. M. Sc. 196: 663 (Nov.) 1938.

52. Morlock, C. G.: Anorexia Nervosa, Proc. Staff Meet., Mayo Clin. 14: 24 (Jan. 11) 1939.

53. Plummer, D. E., and Jaeger, J. R.: Pituitary Cachexia (Simmonds' Disease): Report of a Case with Autopsy, Arch. Neurol. & Psychiat. 40: 1013 (Nov.) 1938.

54. Rahman, L.; Richardson, H. B., and Ripley, H. S.: Anorexia Nervosa with Psychiatric Observations, Psychosom. Med. 1: 335 (July) 1939.

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abdomen showed a scaphoid contour. The clitoris was not remarkable; the uterus on rectal examination was thought to be about one third normal size. The extremities appeared disproportionately long, but the relation of standing to sitting height was 1.9 to 1.0.

The patient's psychic was peculiar, depressed, even sullen and brooding at times; she seemed bright and willing to cooperate, however. The mouth temperature was subnormal, being

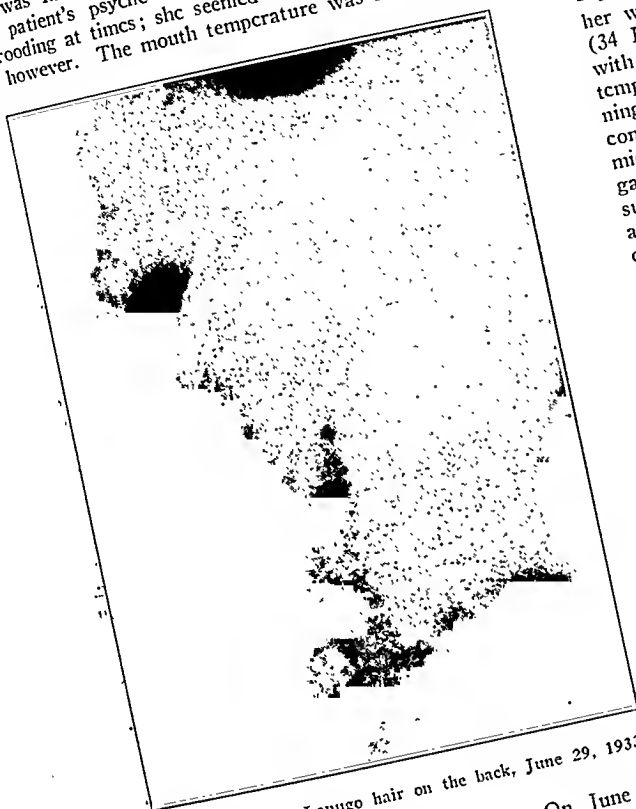


Fig. 1 (case 1).—Lanugo hair on the back, June 29, 1933.

as low as 95 F. and usually around 97. On June 16 the twenty-four hour urine specimen measured 380 cc., with a specific gravity of 1.012. On June 17 the figures were 270 cc. and 1.017. There was no albumin or sugar or other abnormality in the urine. During the first four hours following ingestion of 1,500 cc. of water for a dilution and concentration test of kidney function there was an output of only 275 cc. instead of the usual 1,300 to 1,700 cc. This was due not to absolute fluid retention but to a delay in excretion, for in the next four hours the output had increased to 715 cc. instead of decreasing as usual. The maximum dilution was to 1.001 in three hours after ingestion of 1,500 cc. of water and the concentration to 1.017 in thirty hours after the ingestion of this fluid, during which time she received no fluids. A striking feature was the girl's indifference to this thirsting experiment, which was carried out on a hot summer day. When everybody else was perspiring and thirsty, she didn't seem to mind the heat and was by no means anxious to drink water even at the end of the experiment. A complete blood count, blood sedimentation rate and Hinton, Wassermann and Kahn tests were normal. The fasting blood sugar was 80 mg. per hundred cubic centimeters. On another day, after a fasting blood sugar of 92 mg. per hundred cubic centimeters, 100 Gm. of dextrose was given orally. The values were as follows: after one half hour 96 mg., after one hour 110 mg., after two hours 137 mg. and after three hours 162 mg. per hundred cubic centimeters. The fasting specimens taken at the same time showed no sugar. Frequent basal metabolic rate determinations varied between -42 and -22 per cent. Determination of the specific dynamic action of 200 Gm. (uncooked weight) of beefsteak, attempted with a standard Benedict machine, showed an increase of only 27 calories over the initial level within five hours. X-ray examination of the skull showed a sella turcica of normal contours; the lung fields were clear.

An attempt was made to force food, but this proved unsatisfactory since the patient would eat only small amounts. Daily injections of 1 cc. of antuitrin were given for two weeks, also antophysin and later theelin, without results. Then Armour's thyroid was given, 1½ grains (0.1 Gm.) for one day, 1½ grains twice a day for one day and 1½ grains three times a day for five days. Following this thyroid therapy her resting pulse rate, which regularly had been between 34 and 50 per minute, rose to about 70 and her basal metabolic rate rose to -22 per cent. Her appetite, however, was not improved and her weight dropped to 69 pounds (31 Kg.) from 74½ pounds (34 Kg.). After she had been observed for forty-eight days with no improvement except a persistent elevation of pulse and temperature after thyroid therapy she was given insulin, beginning with 2 units twice daily, increasing to 8 units twice daily, combined with 100 Gm. of dextrose added to breakfast and midday meal when she received the injections. She began to gain a few pounds but had a mild insulin reaction with a blood sugar of 57 mg. per hundred cubic centimeters three hours after an injection. She was then kept in bed, insulin therapy was cautiously continued, and 100 Gm. of lactose was added to the 200 Gm. of dextrose. Her face began to look slightly puffy. During thirty days of insulin treatment her weight increased from 70 to 83 pounds (32 to 38 Kg.). She stated that her appetite had improved, but she continued to be restless and it was difficult to keep her in bed. At this time a dilution and concentration test showed normal excretion of water (805 cc. within four hours after the ingestion of 1,000 cc. of water), a dilution of the urine to 1.001 after three hours and a concentration to 1.026 when fluids had been withheld for twenty-two hours. The twenty-four hour urine amount was now about 2,000 cc. with a specific gravity of 1.010. The blood pressure was 92/70 at this time. There was still no menstruation. She seemed so nearly normal at this time, however, that insulin was omitted, the dextrose feedings and the lactose remaining undisturbed. In the next forty days her weight rose from 83 to 95 pounds (38 to 43 Kg.). During the following twenty-two days, when insulin again was added, her weight rose to 102 pounds (46 Kg.), the increase now being no more rapid than without insulin. The basal metabolic rate at this time was -26 per cent. A dextrose tolerance test was normal, the fasting blood sugar being 92 mg. per hundred cubic centimeters. One half hour after 100 Gm. of dextrose was given orally it was 193 mg., one hour later 145 mg., two hours later 119 mg. and three hours later 96 mg. Because the basal metabolic rate was still low, thyroid 1 grain (0.06 Gm.) three times daily was again given, this time for eight days. The basal metabolic rate rose to -16 per cent but there was also a loss in weight from 102 to 98½ pounds (46.3 to 44.7 Kg.), so the thyroid was discontinued. In the next week she regained the 3½ pounds and was discharged home improved but apparently not cured.

The following note on her emotional state before, during and after her hospital stay was made by Dr. A. Bronner: "Before she went to the hospital she was irritable, but mildly so, and in



Fig. 2 (case 1).—Appearance of patient during July 1934; weight 73½ pounds.

general made very extreme overstatements of the goodness of her parents, especially her mother, and of their many sacrifices. She showed some stubbornness in holding on to her own ideas. As she came to see me toward the end of her hospital stay she seemed cheerful, happy and amenable, expressed gratitude for all that was being done and continued her kindly attitude

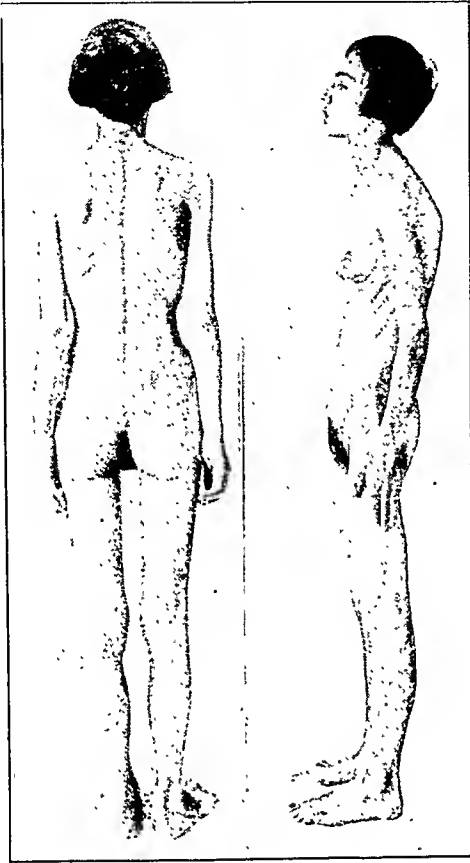


Fig. 3 (case 1).—Rear and side views during July 1934.

toward her parents. Since she has returned home there has been a marked change. In her home and here in her interviews she has revealed earlier hidden deep antagonisms toward her parents, of whom she is now very critical. She seems markedly antagonistic, unhappy and very stubborn and discontented. The psychiatric study and treatment of her deep-seated emotions that probably underlie her eating problem are in the very early stages."

The second admission to the Diagnostic Hospital took place July 6, 1934, because she had soon lost appetite and weight at home and had complained of epigastric pain and of a cough, three months previously, which had lasted for a month.

She was now 15 years old; her weight had dropped to 73½ pounds (33 Kg.). Her general appearance is noted in figures 2 and 3. She looked very much as she had in 1933 at the first admission. Her basal metabolic rate varied between -25 and -30 per cent; the pulse rate and temperature were higher than one year before. Insulin and diet therapy did not bring about a gain of more than 3½ pounds (1.5 Kg.) in five weeks. She hid and discarded food and appeared introspective. She appeared to enjoy the experience of being an interesting case. On August 10 she was given 10 Gm. of sodium chloride in capsules, and the dose was given daily thereafter for three weeks. Her temperature rose to 101 F. the evening of August 10 and continued between 100 and 103 F. for two weeks. X-ray examination of the lungs showed consolidation and a small cavity in the right upper lobe. The sputum was positive for tubercle bacilli. A most interesting feature of the further course was the fact that she gained about 8 pounds (3.6 Kg.) during the febrile stage and continued to gain weight while arrangements were being made to transfer her to a tuberculosis

sanatorium. When she left for the North Reading Sanatorium on October 11, with the diagnosis of open active bilateral pulmonary tuberculosis, her weight was 110 pounds (50 Kg.); she had gained over 35 pounds (16 Kg.) during the two months when she was febrile. Her basal metabolic rate was between -2 and -7 per cent during the febrile state, the hemoglobin had dropped to 67 per cent (72 per cent in July 1934), the dextrose tolerance curve was normal, but the blood sedimentation rate and the white count were distinctly elevated. Figure 4 shows the patient before she was transferred to the sanatorium, where she was treated for almost four years. After an attempt to collapse the right lung was unsuccessful, pneumothorax on the left and, in 1936, pneumolysis were done. During the treatment her weight increased to approximately 135 pounds (62 Kg.), but after the pneumolysis she had temporary recurrence of fever and cough and lost some weight. During 1937 and 1938 her weight increased slowly again and the tuberculous process tended to heal, finally reaching an apparently arrested state. Menstrual periods, which had ceased in 1932, had returned twice in 1935, but she has not menstruated since.

In July 1938 she was readmitted to the Diagnostic Hospital for a third time to be briefly observed. She continued to complain of impaired appetite, easy fatigability, poor sleep and constipation.

She was now 19 years old; she was still definitely undernourished, weighing 98¾ pounds (45 Kg.), and her height was 5 feet 1½ inches (156 cm.), an increase of only 1¼ inches since 1933. The fuzzy lanugo hair was still prominent; the skin, however, was not dry and she seemed to perspire normally. The lungs showed evidence of healed tuberculosis of the right upper lobe and pneumothorax on the left side. The heart was normal, the pulse rate 67; on admission her blood pressure was 92/56 and later 120/80. Gynecologic examination showed the uterus to be infantile. The temperature was normal.

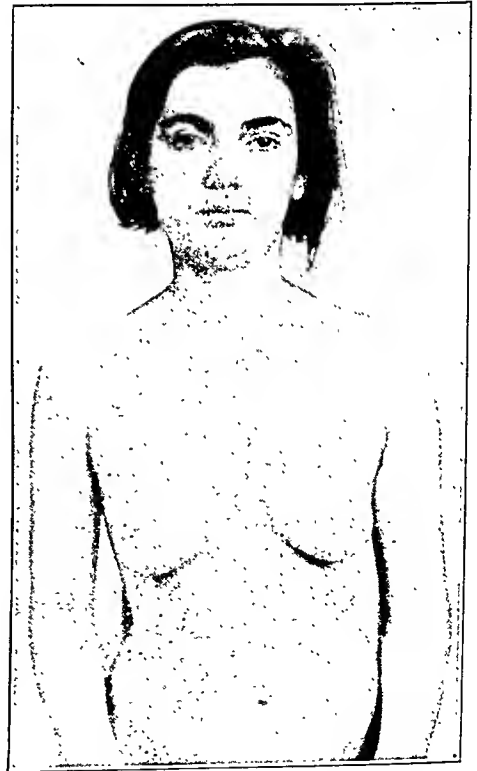


Fig. 4 (case 1).—Improvement shown in October 1934; weight 110 pounds.

The blood picture was essentially normal but the blood sedimentation rate was still elevated, 38 mm. in sixty minutes (Westergren). The dextrose tolerance curve was within normal limits, the basal metabolic rate -13 per cent; the daily urinary nitrogen excretion ranged between 3.5 and 5 Gm., and the sodium chloride excretion was also low.

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She was discharged home to have regular pneumothorax refillings ambulatorily and maintained her weight until December 1938, when there developed pitting edema of both legs and puffiness of the face. During the fall of 1938, when a root canal had been filled in one tooth, this tooth had suddenly broken in half.

On her fourth admission to the hospital, Feb. 24, 1939, the patient weighed 103½ pounds (47 Kg.), the increase in weight being obviously due to rather marked edema. About a month later, with the disappearance of the edema, her weight had dropped to 85.8 pounds (39 Kg.). On discharge, March 2, her weight had reached 98 pounds (44.5 Kg.) again. Except for the edema and a split premolar tooth, physical examination revealed no new abnormalities. The pulse rate was 48 per minute, the blood pressure 108/70. The pneumothorax was fairly complete, with only a small amount of effusion in the left side of the chest, the pulmonary tuberculosis being apparently arrested, as indicated by the x-ray examination, normal temperature, a normal blood sedimentation rate and the absence of tubercle bacilli in the scanty sputum. Of interest were the reduced serum albumin values, the figures being as follows: On Feb. 27, 1938, the total serum protein was 4.01 Gm., the serum albumin 1.84 Gm. and the serum globulin 2.17 Gm. per hundred cubic centimeters. After much coaxing and admonition she ate somewhat better during the stay in the hospital, although she was unable ever to make her eat a full meal and, in view of her previous experience with this type of patient, could never be sure of how much of the food on the tray she had actually consumed and how much had disappeared in some other way. However, the serum protein readings increased as the edema diminished, the total protein being 5.35 Gm., the albumin 3.38 Gm. and the globulin 1.97 Gm. on March 14, 1939. A dextrose tolerance curve was within normal limits; the basal metabolic rate was —31 per cent.

Efforts at psychotherapy and the plan to have the girl go to a foster home in order to eliminate the environmental influences of her home have not succeeded very well as yet, mostly on account of the lack of cooperation on the part of her domineering, rather unintelligent, very robust mother. After discharge from the hospital she was followed as an ambulatory patient, her condition remaining essentially unchanged. The pulmonary process continues arrested, the edema is returning slightly, and the amenorrhea continues.

CASE 2.—R. J., a girl aged 14 years, American, also referred by Dr. A. F. Bronner and Dr. William Healy from the Judge Baker Child Guidance Center in November 1933, stated that she had been well until she had scarlet fever at the age of 9. During the time of recovery she had a very good appetite and put on much weight. Two years later she weighed 126 pounds (57 Kg.) and children, as well as teachers and relatives, began to tease her because she was "too fat." With the help of an insurance pamphlet she put herself on a diet in March 1933, selecting 1,400 calories from the given samples. In the six months of self-inflicted diet she lost at least 40 pounds (18 Kg.). Admitting that she was now too thin, she said she was afraid to eat since she might then gain too much weight and everybody would tease her again. She was ambitious in school and much concerned about her periods, did not complain of abdominal pain except during her periods, which, however, had ceased in February 1933, after having been somewhat irregular following the menarche at the age of 12. Because of habitual constipation she had taken laxatives various descriptions.

The family history was not contributory except for a tendency to leanness in the girl's family. Her parents were slender; her paternal grandmother had never weighed more than 95 pounds (43 Kg.) until her menopause.

Examination showed that she was emaciated. She weighed 80 pounds (36 Kg.). Her height was 5 feet 2¼ inches (158 cm.). All ribs could easily be seen; the skin over the crista ili was stretched and irritated and appeared slightly dry and scaly. Her hands and feet were cool but not cyanotic. Her face was that of an old woman (fig. 5), with sunken cheeks and with wrinkles. The hair of the scalp was dry, short and thin, the eyebrows normal and the pubic and axillary hair

scanty. The teeth were in good condition. The fundi and visual fields were normal and the thyroid not enlarged. The lungs and heart were normal to percussion and auscultation and also on x-ray examination. The pulse rate was 44 per minute in the recumbent [the electrocardiogram showed sinus bradycardia] and 80 per minute in the erect position. The blood pressure ranged between 75/60 and 85/60. The abdomen was scaphoid.

The patient was intelligent, at times depressed, rarely smiling and occasionally antagonistic and morose. According to Dr. Anna M. Skinner, when first seen she was distinctly disturbed emotionally, very antagonistic toward her parents, gave many evidences of a strong feeling of guilt, threatened suicide and seemed depressed.



Fig. 5 (case 2).—Appearance of patient in November 1933; weight 80 pounds.

Her temperature was at times slightly subfebrile. Laboratory studies showed a normal urine, blood picture and serologic reaction. The twenty-four hour urine amount once was as low as 220 cc. with a specific gravity of 1.038. The dilution and concentration tests showed a delayed water output (730 cc. only four hours after the ingestion of 1,000 cc. of water). The blood sedimentation rate was 1 mm. in sixty minutes. The fasting blood sugar value was 73 mg.; one-half hour after administration of 100 Gm. of dextrose 103 mg., one hour later 109 mg., two hours later 105 mg. and three hours later 95 mg. per hundred cubic centimeters. The basal metabolic rate on admission was —31 per cent; three weeks later it was —49 per cent.

The patient was given a high caloric diet, which however most of the time she did not eat. Two cc. of antophysin was injected daily for one week without demonstrable effect. After eleven days in the hospital she had gained only 1 pound (0.5 Kg.). Insulin in small doses, from 2 to 8 units twice daily combined with 100 Gm. of dextrose in orange juice, was then given daily. From this time on she decidedly began to gain weight. In a few weeks there took place gradually a complete change in her personality. She would not remain in bed as

advised, had no complaints and was eager to help in the treatment and stated that she felt like an entirely different person. In thirty-eight days her weight increased from 81 to 100 pounds (37 to 45 Kg.) and she was discharged, apparently normal in every respect except for the persistent amenorrhea (fig. 6). Her basal metabolic rate was now -2 per cent; the blood pressure had risen to 100/68; the fasting blood sugar was 90 mg. per hundred cubic centimeters. A dextrose tolerance test now showed a rise to 137 mg. in one hour and a return to 95 mg. in three hours. The twenty-four hour urine was now between 800 and 1,200 cc. with the specific gravity ranging between 1.011 and 1.016.

Dr. Skinner wrote that the first two weeks after leaving the hospital, when placed in a foster home, the patient was again greatly upset though not as much as originally. She



Fig. 6 (case 2).—Improvement shown by January 1934; weight 100 pounds.

was irritable and resentful of criticism. Now, with continued psychiatric help and the management of an apparently very good foster mother, she seems more stable.

She remained well, was menstruating regularly when seen in 1938 and looked and acted like a perfectly normal, well composed young lady.

She was readmitted on Oct. 27, 1939. At this time we learned that she had had no menses for twelve months, the periods having been normal for four years previously. In January 1939, for no apparent reason, edema began to develop. This was recurrent and progressive until the time of her last admission. Her weight, which had been about 118 pounds (54 Kg.) for several years, decreased to 105 pounds (48 Kg.) in September and October 1938, when she was having emotional difficulties with her "boy friend." The amenorrhea began during this period and might be attributed either to the relatively slight weight loss or to the emotional trauma. The edema was not satisfactorily explained after full investigation in the hospital.

Obviously some abnormality persists. We can only conclude that it is safer to designate improved cases of anorexia nervosa as temporarily recovered rather than cured.

CASE 3.—M. H., a woman aged 28, of English stock, a housewife, was admitted twice within a relatively short time in 1935 and 1936. The case history may be summarized as follows:

Symptoms began about one year after her marriage at the age of 20. She had then continued to work in a mill, getting up before 6 o'clock in the morning, doing the housework, working all day in the mill, and working again at home until midnight. She said that she became extremely nervous and irritable and that her stomach began to feel heavy after eating. Soon she vomited after every meal food which was not digested at all. She felt that her "stomach got worked up" whenever she became excited. There were times, she said, when she felt as if the inside of her stomach was tied up in a knot. After having vomited after practically every meal for years she then, at the age of 26, began to vomit blood. From then on she had vomited blood about seventy times. According to her statements the amount of blood varied from a teaspoon to a cup. The hematemesis occurred only after a large meal and she felt relieved afterward. From this time on she lost weight rapidly, although there had been a gradual loss from 126 pounds (57 Kg.) at the time she was married to 111 pounds (50 Kg.) when she began to vomit blood. From 111 pounds her weight fell to 75 pounds (34 Kg.) in 1935, at which time she was admitted to the hospital. However, she claimed that her appetite was good and that she could always eat. The vomiting of blood had been less frequent during the last year, but she continued to vomit at least once a day. She had suffered from constipation for many years. She dreaded cold weather; her hands and feet would always be cold no matter how heavily she dressed. She had felt dizzy at times outdoors because of the cold and had fainted a few times on such occasions. Her sleep had been very much impaired in the year after marriage, when she continued to work in the mill. She could not stay in bed but would find something to do and "then work, work, work." Even during the more recent years, after she had given up the mill work, she would always drive herself. She asserted that she was never tired and that she was able to stay up until 2 or 3 o'clock in the morning and yet rise very early. She stated that she had many friends, being very popular. Although she said that her marital life was very happy, close inquiry revealed that she had never had sexual intercourse with her husband. She explained this by stating that she had no sexual desire, her husband abstaining when she made that clear. Menstruation had begun at the age of 14 and had been regular until one year after marriage, when the periods ceased permanently.

The past history otherwise was not remarkable. At the age of 9 she had received a prize at a fair for being the healthiest child. One sister had had a nervous breakdown.

Physical examination (fig. 7) showed an extremely undernourished woman, weighing 73 pounds (33 Kg.), who was surprisingly active for her dreadful appearance. She was 5 feet one-fourth inch (153 cm.) tall. The skin was thin, translucent and parchment-like where it was stretched over the bony ridges. The abdomen showed definite striae, obviously due to the tension of the tightly stretched skin. There was slight brown pigmentation over the sacral and anal regions and also over the shins and crista ili. The skin was dry; the underlying muscles could be seen as through a movable veil. No spontaneous petechiae were seen, but the tourniquet test was slightly positive. The hair and eyebrows were abundant. The teeth were in fair condition. The heart and lungs were normal to percussion and auscultation. The pulse rate was between 50 and 60 and once 48 per minute. The blood pressure was 84/62. The abdomen was scaphoid; the lower pole of the right kidney was easily palpable. Gynecologic examination was difficult on account of the patient's lack of cooperation. It disclosed a tight hymenal ring admitting one finger with difficulty.

Personality studies, already partially given in the history, showed an extremely nervous temperament, excitability, stubbornness and fussiness. The patient seemed driven by an inner impulse which never gave her any rest, rendering her unable to relax.

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Her temperature was subnormal, several times being 96 F. Laboratory studies revealed a normal blood count with the exception of a diminished platelet count, which varied between 170,000 and 280,000 per cubic millimeter. The blood sedimentation rate and Hinton, Wassermann and Kahn tests were normal. Bleeding and clotting time were within normal limits. The fasting blood sugar was 79 mg. per hundred cubic centimeters. The serum cholesterol was 163 mg. per hundred cubic centimeters with a normal ratio between esters and free cholesterol. The urine contained no pathologic substances. The dilution and concentration test showed a markedly delayed water output (320 cc. only four hours after the ingestion of 1,000 cc. of water) with the lowest specific gravity 1.006, the highest being 1.028. The twenty-four hour urine volume was low (the smallest amount measuring 186 cc.) with a correspondingly low twenty-four hour urinary nitrogen excretion of only 1.86 Gm. on one day and frequently between 2 and 3 Gm. on other days. The basal metabolic rate was repeatedly about -20 per cent and once -29 per cent. The esophardiogram was normal; the x-ray examination of the esophagus and stomach revealed no evidence of pathologic changes. X-ray study of the chest showed spontaneous fractures of three ribs, which on reexamination one year later had healed. The skeleton showed a diminished calcium content throughout, which is particularly obvious in the right pubic bone. Dr. W. Holmes thought that the bones were somewhat decalcified in the inferior ramus of the right pubic bone. It was thought that experiment leads to spontaneous fractures. It was thought that the fractures may have occurred from falls associated with the fainting spells.

Dr. J. J. Schloss performed a gastroscopy and found multiple pinpoint hemorrhages which he thought were due to the frequent vomiting spells. Gastric analysis revealed no free hydrochloric acid after a caffeine meal.

Attempts at psychotherapy proved unsuccessful. The frequent vomiting prevented adequate high caloric and vitamin intake of food. The vomitus contained only traces of blood while the patient was in the hospital. Her weight varied between 74 and 64 pounds (34 and 29 Kg.). She insisted on going home, her condition being essentially unchanged.

Rather unexpectedly we saw the patient again in November 1938.

Her appearance had changed markedly; she had gained about 20 pounds (9 Kg.) in the last two years, weighing now 92½ pounds (42 Kg.). She stated that after leaving the hospital she began to eat small meals and that it seemed necessary to humor the stomach and let it stretch gradually over a period of a year. In 1937, however, she began to eat regularly and had since been able to do this with comfort, boasting of being able even to eat doughnuts and pork chops. She did not vomit again. She now slept well and felt much more restful. There

were no menstrual periods yet, however, and she had still had no sexual intercourse with her husband. She admitted having been frightened by the picture which we had made of her at the hospital and said that she couldn't believe that she could look so terrible. She stated that she felt that her extreme emaciation had been due to the fact that in her work she was excessively fatigued and that, in addition to this, her marriage had added housework so that she came to a state in which she could not sleep. She had noticed lately that her hair began to grow normally again, that her skin was warm and that she was not continually "freezing to death" any more.

On physical examination she weighed 92½ pounds and was still spare and lean but very different in appearance from her former state, her skin having lost the parchment-like character (fig. 8). About the edge of her hair there was a short new growth of hair. The eyes, including ophthalmoscopic examination, were normal. The teeth were in good condition. The pulse rate varied between 60 and 70 per minute; the blood pressure was 100/70. Gynecologic examination demonstrated an intact hymen and an extremely small uterine fundus. She was comfortable and gained 1 pound more. Her temperature varied between 97 and 98.4 F. Laboratory studies showed a normal urinalysis, a mild hypochromic anemia, a reduced platelet count of 130,000 per cubic millimeter, and a slightly positive tourniquet test; the fasting blood sugar was 101 mg. per hundred cubic centimeters. After the ingestion of 100 Gm. of dextrose the blood sugar level was 205 mg. after one-half hour, 228 mg. after one hour, 183 mg. after two hours and 127 mg. after three hours. There was a slight spilling of sugar in the urine in the first and second hours of this test. The basal metabolic rate was still -23 per cent. Gastric analysis showed no free hydrochloric acid and a total acidity of 30 degrees. Dr. Schloss repeated the gastroscopy and found the mucosa of the stomach normal with possibly a slight degree of atrophy. An x-ray film of the chest revealed that the previously reported fracture of the ribs had completely healed.

Briefly then there had occurred in this woman a striking change of bodily appearance associated with a change of her personality. She now appeared to be well on her way to recovery although the persistent amenorrhea, as well as the low basal metabolic rate and slight anemia, would make one hesitate to call the recovery complete. It appears that in these cases normal menstruation is the last hurdle to full health.

COMMENT

The recent appearance of many papers dealing with cases similar to those just reported indicates that this syndrome is relatively frequently encountered. These papers have stimulated controversial discussion, particularly as to cause and management. The problem begins immediately when one tries to label these cases. Those who would like to refer to them as examples of neurosis or anorexia nervosa must explain the striking features which point so decidedly

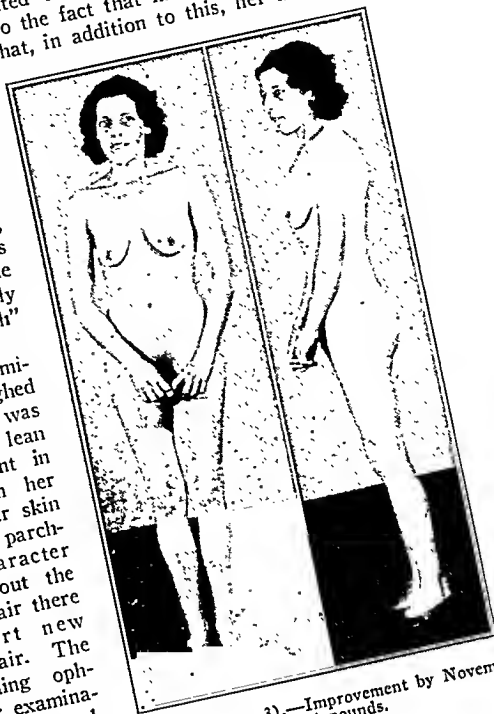


Fig. 8 (case 3).—Improvement by November 1938; weight 92½ pounds.

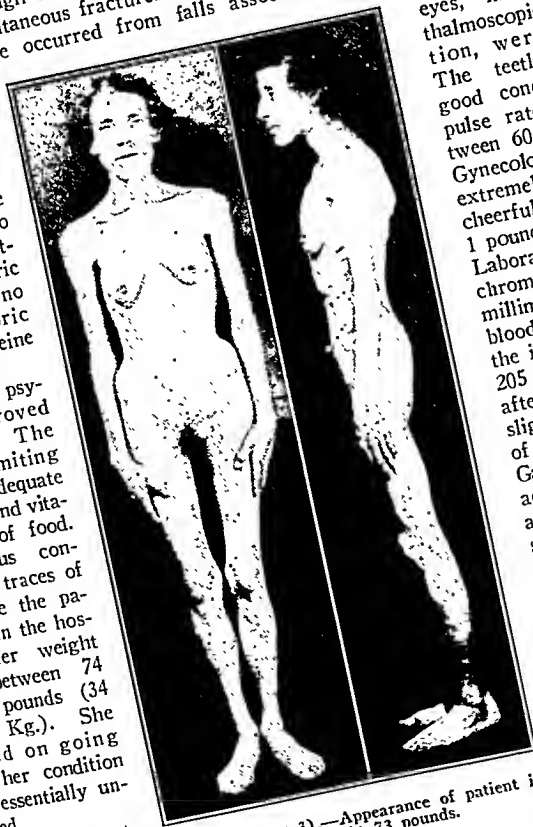


Fig. 7 (case 3).—Appearance of patient in November 1936; weight 73 pounds.

to an endocrine disturbance. Why are many of the characteristic traits, suggesting hypofunction of various endocrine glands, so similar to the classic signs of Simmonds' disease, or pituitary cachexia, which is generally agreed to be due to atrophy of the anterior pituitary lobe? Emaciation, anorexia, dry cold skin, subnormal temperature, low oxygen consumption, amenorrhea, hypoglycemia, bradycardia, arterial hypotension, low level of water metabolism, constipation and psychic alterations are common manifestations of both anorexia nervosa and pituitary cachexia. Admitting that in cases of "true" fatal Simmonds' cachexia the changes are extreme, one wonders whether the differences are quantitative rather than qualitative. It seems difficult to assume that the loss of hair and teeth and the extreme weakness in pituitary cachexia in contrast to the frequently observed growth of peculiar lanugo-like hair and the psychic alertness and restlessness in anorexia nervosa should signify a totally different etiology. Is it possible that the duration of the illness and the age of the persons involved could account for the difference of the two clinical pictures? Why is true pituitary cachexia always fatal? How is one to recognize mild cases of pituitary cachexia and how is one to differentiate them clinically from instances of anorexia nervosa? Through what mechanism could starvation induce those endocrine features common to the two diseases—through pituitary hypofunction? One might say teleologically that hunger leads to a *vita minima*. The result of the dilution test in all three cases and the flat, slowly rising dextrose tolerance curve in cases 1 and 2 suggest a delay in handling water and dextrose consistent with the conception of a life on a lower level of activity. The amenorrhea would fit into this idea of a throttled life, like war or starvation amenorrhea (von Noorden and Salomon⁵⁵). Benedict's⁵⁶ important work on students who were put on a reduced caloric intake and then showed many of the features which our patients showed, notably lowered oxygen consumption, bradycardia, hypotension and loss of libido and energy, is interesting in this respect, as is the current assumption that the pituitary gland controls hibernation (Calder⁵⁷).

Those, on the contrary, who would be inclined to assume a primary functional endocrine deficiency in order to explain our cases, as has been the tendency lately under the influence of modern experimental and clinical endocrinology, would have to account for the striking psychic abnormalities. With the solution or alleviation of these personality problems and readjustment to life's difficulties, the appetite of most of these patients returns and the endocrine features vanish—a fact that leaves doubt as to their primary nature. This has happened to moribund patients, who might have died had not a physician turned the tide (Venables,¹⁶ Ryle³⁷). Should one resort to the term "functional" Simmonds' disease—a pituitary "black out" of psychologic origin, as Sheldon⁵⁸ does?

The time relation between pituitary cachexia and the puerperium is striking and can be explained by starvation with difficulty unless we assume that it is during the puerperium when emotional strains most commonly occur. (Approximately 80 per cent of the insanity of pregnancy occurs in the puerperium.) The work of Sheehan,⁵⁷ already referred to, appears to be particu-

larly important in this regard. Sheehan and Murdock's statement that a second pregnancy "usually brings great improvement or even complete and permanent cure of the symptoms of pituitary insufficiency" is particularly startling and worthy of further studies. Undisputed appears to be the pathogenesis of the cases with pituitary cachexia due to tumor or granulomatous tissue destroying the anterior lobe. In the reports of embolic or thrombotic phenomena after pregnancy with resulting pituitary atrophy, no adequate explanation of the specific localization of such vascular lesions has been forthcoming. Schürmann²⁸ reported a complete absence of the anterior lobe in a patient who died after eleven years of illness at the age of 54. He postulated adaptation to diminished demand as the explanation for the thickening of the vessel wall and narrowing of the lumen, which amounted to closure in some branches of small caliber of the arteriae hypophysis superiores.

An attempt to ascertain whether the type of case which we have described is primarily psychogenic or organic may, after all, be too limited a manner of approaching the problem, man being such a complex whole. Study of any condition from only one aspect, and with but one point of view, can never reveal the whole truth.

That it is not always the anorexia which initiates this syndrome is demonstrated by our third patient. Although this woman presented most of the striking features of our other two patients and of those in the literature described as having anorexia nervosa or pituitary emaciation, she differed in the following important detail: she insisted that her appetite had always been very good but that she had vomited after almost every meal for years. This had led finally to hematemesis, of which she reported seventy instances in the course of several years. In other words, the typical clinical picture of anorexia nervosa had been produced in this case by hyperemesis nervosa.

Despite the current trend of emphasizing the psychogenic factor, Meyler⁵⁸ says, "it is a mistake to consider these people as hysterics." However, the psychologic aspects of the syndrome cannot thus simply be dismissed without more evidence.

It seems wise to concede that this strange clinical picture is as yet incompletely understood and that much further work remains to be done, particularly detailed reporting of the psychologic features in fatal pituitary cachexia and careful somatic and postmortem studies of the so-called primary psychogenic types of anorexia nervosa. Some people respond to emotional trauma by excessive food intake; certain cases of obesity result from such a mechanism. Certain obese patients take to food in the same sense that a drunkard takes to drink, namely in response to a psychic conflict; and the management of such problems, like the management of anorexia nervosa, is often most satisfactory when directed largely through psychic channels.

Owing to the uncertainties as to etiology, the practical handling of these cases has been difficult and has varied from psychoanalysis to risky, repeated implantations of animal pituitary tissue into the omentum of these patients of low resistance. How many of these unfortunate girls have been sent to tuberculosis sanatoriums, as was our first patient, who at the outset had no evidence of pulmonary tuberculosis? How many have died in psychiatric institutions classified as

55. von Noorden, Karl, and Salomon, Hugo: *Handbuch der Ernährungslehre*, Berlin, Julius Springer, 1920, p. 952.

56. Benedict, F. G.: Miles, W. R.; Roth, P., and Smith, H. M.: *Human Vitality and Efficiency Under Prolonged Restricted Diet*, Publication 280, Carnegie Institution of Washington, 1919.

57. Sheehan, J.: Sheehan and Murdock.¹²

58. Meyler, L.: Simmonds' Disease (Hypophyseal Emaciation) *Acta med. Scandinav.* 96: 157, 1938.

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schizophrenic or depressive? Before there are as clear diagnostic methods to differentiate between anorexia nervosa and pituitary cachexia as there are to separate psychogenic polydipsia from diabetes insipidus, one should be hesitant in making a definite diagnosis. While endocrine substitution therapy is being pushed, one should not forget the probable great importance of patience, tact and kind understanding in which the personal problems, a therapeutic approach in which the older type of physician seems to have been superior to our highly specialized, modern physician. Déjerine and Gauckler's⁶ statement that there is no way of telling if a patient will or will not get well seems worth remembering. Even though in two of our cases insulin seems to have helped, one must be cautious in the evaluation of its therapeutic effects in view of the first girl's strange gain in weight during the most active febrile stage of her tuberculous process. Although we observed no serious accident during the insulin treatment, one should be on guard for such severe reactions (Josefson,¹⁸ Schüpbach²³ and von Bergmann²⁶). Evidently the longer the patient's illness has lasted, the more difficult will be the cure. It will be even more difficult if complicated by signs of avitaminosis and food deficiency, as illustrated by our third patient with spontaneous fractures of decalcified bones and possible vitamin C deficiency. In this regard Thannhauser's⁵⁹ paper on pellagra and endocrine disturbances suggests interesting new fields of clinical investigation. In an unreported case one of us has seen early manifestations of typical pellagra in a young girl with anorexia nervosa. After she had been extremely emaciated and had resisted all efforts to make her gain weight, both conditions spontaneously subsided when she suddenly changed her mind and began to eat ravenously.

One final question should be raised, namely Is the fundamental disorder in cases of anorexia nervosa—psychic or endocrine—ever really curable, and if so what are the criteria for such a cure? Apparently full recovery, even for a few years as in case 2, is in itself not a sufficient criterion for predicting a permanent cure, even when weight is maintained at a normal level. This fact might favor the importance of the psychogenic element in the pathogenesis of anorexia nervosa as the cures are so notoriously liable to recurrence, even with comparatively slight psychic trauma.

SUMMARY AND CONCLUSIONS

The condition of anorexia nervosa is apparently not uncommon, although there was practically no American literature on the subject prior to 1932. The etiology is obscure.

There is no regularly satisfactory treatment. Some patients recover seemingly spontaneously, as did one of our patients. Two of our patients seemed to improve after insulin therapy, although one of them after a relapse did not respond so strikingly to insulin on a second trial.

The criteria for cure have not been established. In one of our cases, after apparently complete recovery from both clinical and laboratory standpoints for a period of four years, amenorrhea and then edema developed without preceding significant loss of weight and following comparatively slight emotional trauma. It appears that some underlying disturbance, somatic,

psychic or psychosomatic, may persist even when a patient seems to have fully recovered.

It is possible that the clinical picture of anorexia nervosa may develop somewhat as follows: Certain individuals may react to emotional conflict by developing anorexia. As a result, then, of a diminution of the normal stimulus to appetite which regular food intake produces, this anorexia may become prolonged and self-perpetuating. With the consequent loss of weight all of the unusual features associated with the cases described may appear purely as a physiologic response to weight reduction and semistarvation. Why only few individuals will react to emotional conflicts in this manner (while most do not) can be explained only if certain necessary conditioning factors are assumed. What such conditioning factors are must remain in the field of speculation. Here perhaps lie the so-called primary endocrine factors. The management of anorexia nervosa is often most satisfactory when directed largely through psychic channels.

RENAL LESIONS FOLLOWING ADMINISTRATION OF HYPERTONIC SOLUTIONS OF SUCROSE

REPORT OF SIX CASES

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Intravenous administration of hypertonic solutions of sucrose has become popular within recent years for the reduction of increased intracranial pressure. Bullock, Gregersen and Kinney¹ in 1935 showed that sucrose reduced cerebrospinal fluid pressure without a secondary rise, such as followed administration of dextrose or saline solutions. The usefulness of sucrose was confirmed by Masserman² and by Jackson, Dickerson and Gunther.³ The injected sucrose did not appear to metabolize or to diffuse out into the cerebrospinal fluid. The sugar was rapidly excreted by the kidneys, with a marked diuresis amounting to about four times the amount of sucrose solution injected. Toxic effects noted were slight, although patients complained of malaise and muscle pain, and a moderate leukocytosis occurred.

Helmholz⁴ in 1933 noted that hypertonic solutions of sucrose given intravenously to rabbits produced marked renal lesions. One hour after a 20 per cent solution of sucrose was administered, the cells of the renal convoluted tubules began to swell. This swelling persisted for about a week. The change in the cells of convoluted tubules was a marked vacuolar degeneration. The cytoplasm became finely granular and the cells stained very lightly. Nuclear shrinkage occurred. Glomerular spaces and tubular lumens became filled

From the Department of Pathology, University of Tennessee Pathological Institute.
The illustrations in this study were made by Dr. Joseph L. Scianni, artist, University of Tennessee Pathological Institute.

1. Bullock, L. T., Gregersen, M. I., and Kinney, R.: The Use of Hypertonic Sucrose Solution Intravenously to Reduce Cerebrospinal Fluid Pressure Without a Secondary Rise, *Am. J. Physiol.* **112**: 82 (May) 1935.
2. Masserman, Jules H.: Effects of the Intravenous Administration of Hypertonic Solutions of Sucrose with Special Reference to Cerebrospinal Fluid Pressure, *Bull. Johns Hopkins Hosp.* **57**: 12 (July) 1935.
3. Jackson, Harry, Dickerson, Donald, and Gunther, Aaron: The Reduction of Intracranial Pressure in Cerebral Injury by the Intravenous Use of Hypertonic Sucrose Solution, *Ann. Surg.* **106**: 161 (Aug.) 1937.
4. Helmholz, H. F.: Renal Changes in the Rabbit Resulting from Intravenous Injection of Hypertonic Solution of Sucrose, *J. Pediat.* **3**: 144 (July) 1933.

59. Thannhauser, S. J.: Pellagra und endokrine Störungen, München. med. Wchnschr. **80**: 291 (Feb. 24) 1933.

with granular material. The changes began to subside on the seventh day, and by the fifteenth day there was restitution to a normal appearance. However, if the injections were repeated at intervals of three days or less the changes were more severe and eventually progressed to epithelial atrophy and sclerosis of the renal tissue. Following this repeated administration of sucrose there was a marked decrease in functional capacity of the kidney, as measured by the output of phenolsulfonphthalein.

Lindberg, Wald and Barker⁵ verified and extended this work by studies on dogs. They described the same type of renal lesion following the administration of 50 per cent solutions of sucrose. The changes reached their maximum between the third and fifth days after injection. They emphasized the tendency to resolution of the lesion unless there was prolonged repeated administration. Hypertonic solutions of d-sorbitol, dextrose and sodium chloride failed to produce similar renal lesions.

Helmholz⁴ also described one human case in which there had been a series of injections of hypertonic solutions of sucrose. The renal tubular cells were greatly swollen and pale, and the changes were similar to those present in the experimental animals. No significant

Administration of Sucrose and Associated Renal Damage

Case	Amount of 25% Sucrose Administered (Cc.)	Number of Injections	Period of Administration (Days)	Time Before Death of Last Injection (Hours)	Characteristic Renal Changes
1.....	3,350	15	4	4	Very severe
2.....	1,750	7	4	8	Very severe
3.....	1,000	4	3	8	Severe
4.....	200	1	1	3	Moderate
5.....	200	1	1	11½	Moderate
6.....	100	1	1	12	Slight, early recognizable

change in urea clearance following a single injection of 200 cc. of 50 per cent solution of sucrose in human beings was found by Lindberg, Wald and Barker.⁵

The use of hypertonic solutions of sucrose was started in this hospital in the latter part of 1938. Within the last six months a peculiar type of renal tubular lesion has been noted in routine autopsies. This was so striking in some cases and so different from anything observed previously that it led to speculation as to its origin. The similarity between these changes and those described by Lindberg, Wald and Barker and by Helmholz was recognized. On examination of the clinical records it was found that the patients had received repeated intravenous injections of hypertonic solutions of sucrose. Lesser degrees of the changes were recognized, and it was found that one could correctly state, from the section of kidney tissue alone, whether or not the patient had received hypertonic sucrose during a period of several days before death. A report of six cases follows in the hope of making these changes more widely known and recognized. The amount of sucrose administered in each case and the time relations are detailed in the accompanying table.

REPORT OF CASES

CASE 1.—D. G., a Negro man aged 65, came to the hospital complaining of pain in the lumbar region, difficulty and frequency of urination, headaches and dizziness. He was found to

have marked hypertension, prostatic enlargement with urinary retention, and moderate subcutaneous edema. The nonprotein nitrogen content of the blood was 166 mg. per hundred cubic centimeters. The urinary obstruction was overcome by means of a retention catheter. Hypertonic solutions of dextrose and sucrose were administered. A total of 3,350 cc. of a 25 per cent solution of sucrose was given over a four day period. There was a gradual lapse into a stuporous and then comatose condition. Death occurred three days after the last administration of sucrose.

At autopsy there was found to be fairly severe sclerosis of the arteries and arterioles, both in the kidney and elsewhere. The prostate showed benign enlargement, and there were cystitis and pyelonephritis. Terminal bronchopneumonia had occurred. On microscopic examination of the kidneys, in addition to the damage attributed to the arteriosclerosis and pyelonephritis there was a very striking change in the convoluted tubules of the cortex. These tubules stood out as patchy light staining areas. This was due to marked swelling of the cytoplasm of the lining cells. The swollen cells had a very clear cytoplasm, only a finely granular or reticular material in the cytoplasm taking the stain. Occasionally small clear vesicles or droplets appeared in the cytoplasm, and similar material was present in the lumen. Details of this lesion as it occurred in this and the following cases will be described later.

CASE 2.—D. W., a Negro man aged 33, came to the hospital because of headaches and dizziness beginning five months previously. He was found to have a blood pressure of 220 systolic, 165 diastolic, an enlarged heart and massive edema of the disk and retina with exudates and hemorrhages. The spinal fluid pressure was 300 mm. of water. The nonprotein nitrogen content of the blood was 75 mg. per hundred cubic centimeters. Hypertonic solutions of dextrose and sucrose were given intravenously. A total of 1,750 cc. of a 25 per cent solution of sucrose was administered at intervals on three of the last four days of life. The headaches continued. Nausea, vomiting and twitchings developed. The patient gradually became stuporous and comatose. Death occurred eight hours after the last dose of sucrose. The nonprotein nitrogen level was 130 mg. per hundred cubic centimeters of blood on the day of death.

At autopsy the kidneys showed the changes of severe arteriosclerosis. The convoluted tubules showed a severe generalized foamy change of the epithelial cells. The pale staining cells were so distended that many of the lumens appeared entirely closed. In some areas the cells were necrotic. The heart weighed 450 Gm. and had moderately dilated chambers, and the viscera were involved by mild chronic passive congestion. There was terminal bronchopneumonia.

CASE 3.—T. W., a Negro man aged 67, was brought to the hospital unconscious, with twitching and coldness of the lower extremities. The coma had followed a period of drowsiness and stupor noted the previous day. The temperature was 104 F., respiratory rate from 32 to 40 per minute and pulse rate 130. Death occurred on the third day without return to consciousness. A total of 1,000 cc. of a 25 per cent solution of sucrose, in 250 cc. doses, was given during these three days, the last dose being administered eight hours before death.

Autopsy showed congestion and edema of the brain but no cerebral hemorrhage. The heart weighed 350 Gm. There were marked pulmonary edema and acute bronchopneumonia. Except for a slightly granular outer surface, the kidneys appeared normal on gross examination. Microscopically the kidneys were congested and the cells of the convoluted tubules showed a severe distinctive foamy distention, comparable to that in the previous cases. Amorphous exudate was present in the tubular lumens and glomerular spaces. There was a moderate amount of sclerosis of the small vessels, with occasional fibrosed glomeruli.

CASE 4.—O. D., a white man aged 64, was admitted to the hospital unconscious and died four hours later. He had been under treatment for hypertension for several years. A single injection of 200 cc. of a 25 per cent solution of sucrose was administered three hours before death.

A recent occlusion of the left coronary artery, with a large myocardial infarction, was the cause of death. On gross examination the kidneys showed little change. Microscopically, a

5. Lindberg, H. A.; Wald, M. H., and Barker, M. Herbert: Renal Changes Following Administration of Hypertonic Solutions, *Arch. Int. Med.* 63: 907 (May) 1939.

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camy swelling of the cells of the convoluted tubules was generalized. The nature of the change was the same as described in the previous cases but its severity was somewhat less. Nevertheless, many of the tubules appeared completely blocked and many cells were necrotic. The kidney shared in a general

At autopsy there was found a ruptured aneurysm of the right internal carotid artery, with hemorrhage into the subarachnoid space. The kidneys showed a moderate swelling and granularity of the tubular epithelium. The characteristic pale staining foamy change of the cytoplasm was present in only one focal area.

COMMENT

In cases 1 and 2 the severe generalized lesion involving the renal convoluted tubules was inflicted as an additional burden on kidneys already badly damaged by vascular changes. In case 1 infection and obstruction also contributed to the renal damage. Cases 1, 2 and 3 all showed the results of repeated administration of hypertonic solutions of sucrose over periods of three and four days. In each instance the renal lesion was generalized and severe, with distinctive and easily recognizable characteristics. Case 4 reveals the rapidity with which the characteristic tubular changes are brought about, being well developed three hours after the sucrose was administered. It is evident from cases 4 and 5 that a single dose of 200 cc. of a 25 per cent solution of sucrose will result in marked lesions. Even after 100 cc. slight but definite lesions appear, as illustrated in case 6.

Two groups of cases were selected to act as controls. In each case sections of the kidneys were searched for lesions such as are described in the reported cases. The first group, consisting of fifty adults, were examined

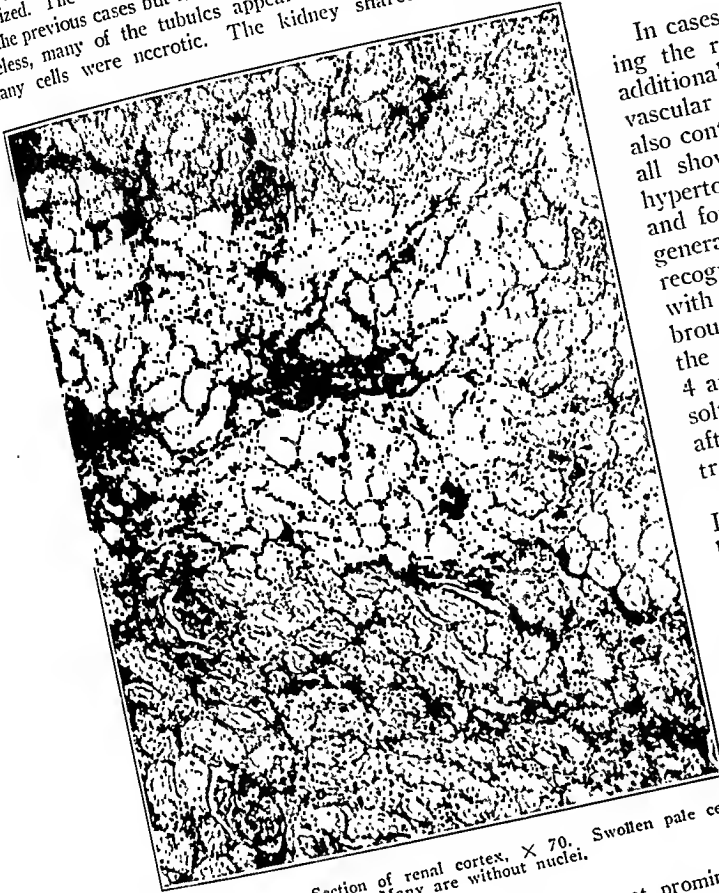


Fig. 1 (case 3).—Section of renal cortex, $\times 70$. Swollen pale cells line the convoluted tubules. Many are without nuclei.

renal congestion, but vascular changes were not prominent small vessels.

CASE 5.—H. G. W., a white man aged 74, came to the hospital because of severe shortness of breath of three months' duration. Swelling of the abdomen and legs had been present intermittently for four years. Physical examination showed signs of congestive heart failure with marked edema. The nonprotein nitrogen of the blood on admission was 30 mg. per hundred cubic centimeters. The condition of the patient became progressively worse, and death occurred one and a half days after admission. A single intravenous injection of 200 cc. of a 25 per cent solution of sucrose was given eleven and one-half hours before death.

Autopsy showed mitral and aortic stenosis, with great cardiac hypertrophy and dilatation, marked chronic congestion of the viscera and generalized arteriosclerosis. The kidneys were normal on gross examination, except for slight granularity of their outer surfaces. Diffusely throughout the cortex the convoluted tubules were lined by pale swollen cells having a very foamy or vacuolated cytoplasm. All stages and grades of severity including loss of nuclei and rupture of cells could be found. Droplets and amorphous material appeared in the tubular lumens and glomerular spaces. The epithelial cells of some of the glomeruli also appeared swollen and pale staining, and a few polymorphonuclear leukocytes were present in their capillaries. The kidneys shared in the general visceral congestion.

CASE 6.—E. J. B., a white woman aged 69, became suddenly unconscious. Lumbar puncture showed blood stained fluid. Death occurred fourteen hours after she became unconscious. A single injection of 100 cc. of a 25 per cent solution of sucrose was administered intravenously about twelve hours before death.

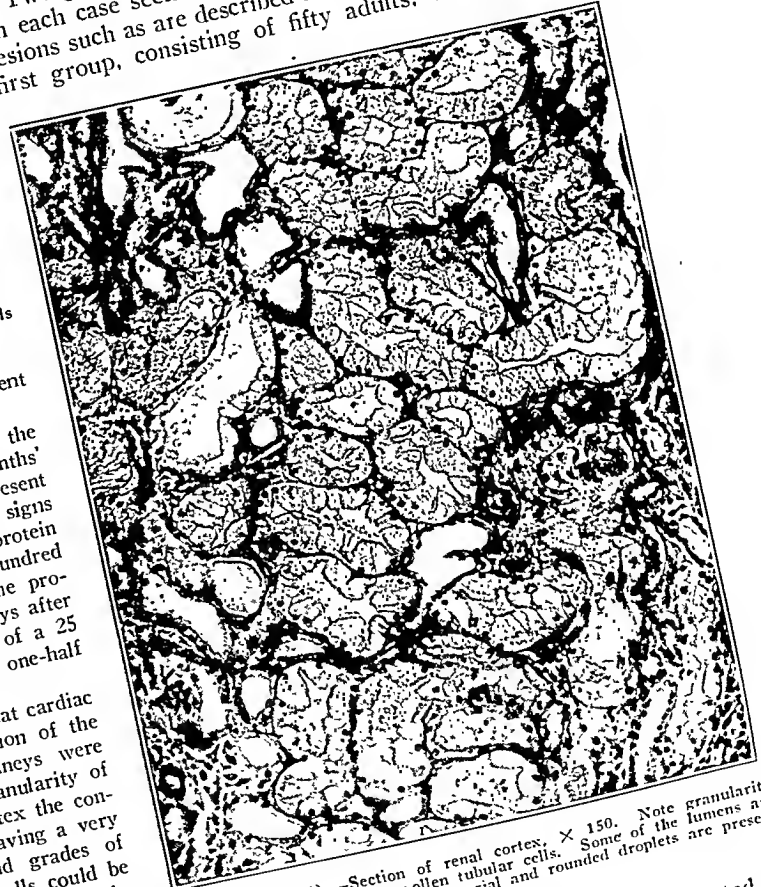


Fig. 2 (case 2).—Section of renal cortex, $\times 150$. Note granularity and foamy appearance of swollen tubular cells. Some of the lumens are greatly narrowed. Amorphous material and rounded droplets are present in some of the lumens.

post mortem before the use of sucrose was started in this hospital. The second control group comprised twenty patients who had indications for the administration of hypertonic solutions but for whom sucrose had not been used. Many of these had been given hyper-

tonic solutions of dextrose. Lesions in the kidneys similar to those which follow intravenous administration of hypertonic solution of sucrose were found in none of these control cases. Among cases coming to autopsy within a few days of the administration of a hypertonic solution of sucrose, there was only one in which the characteristic renal lesion was not found. In this instance there were marked autolytic changes in the kidneys, and the lesion due to sucrose, if present, was entirely masked.

Intravenous administration of hypertonic solutions of sucrose produces renal lesions of peculiar nature, their apparent specificity and easy recognition being striking. While the series of cases reported here is small, there is enough variety of dosage and time between administration and death that some information may be gained regarding the succession of changes which develops. The earliest and mildest lesion appears to be a slight swelling and granularity of the cytoplasm of the cells lining the convoluted portions of the tubules. The swelling of the epithelial cells progresses and the cytoplasm becomes very pale, so that within three hours the appearance is quite changed. A lumen is frequently not visible between the swollen cells. At this time the cytoplasm contains very fine granulations. The granulations may soon appear as a very fine reticulum. Later, small round clear vesicles or droplets appear in the cytoplasm and apparently are extruded into the tubular

tubular epithelium involve the convoluted portions of practically all tubules to a similar degree in any one case.

The glomeruli also show some changes, particularly after administration of large amounts of hypertonic solu-

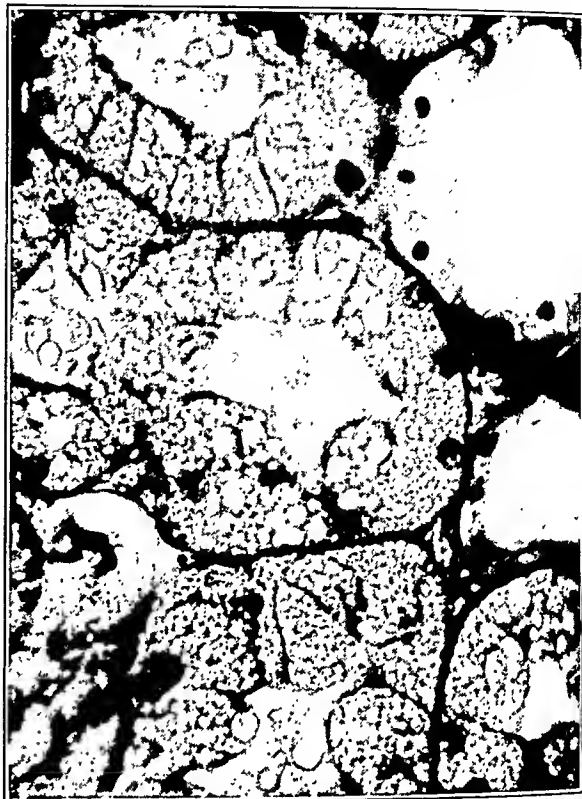


Fig. 4 (case 2).—Section of renal convoluted tubules, $\times 550$. Note details of the severe changes in tubular epithelium. Droplets of various sizes are collecting in the swollen granular cytoplasm. Some of the droplets are being extruded from the cells, and similar droplets are evident in the lumens. Many of the affected cells have no visible nuclei.



Fig. 3 (case 2).—Section of renal cortex, $\times 150$. Accumulation of leukocytes in glomeruli is shown here, as well as the characteristic tubular lesion.

lumen, or rupture of the cell and desquamation of its contents into the lumen occur. The basement membranes are not involved. The nuclei show little change until the severer degrees of damage are present, when they begin to fade, become shrunken and pyknotic and may entirely disappear. These severe changes in the

tions of sucrose by repeated doses at short intervals. The capillaries of the glomerular tufts are congested, and in some a few leukocytes collect. The nucleus and cytoplasm of the epithelial cells of the tufts become larger and more prominent, appearing swollen and granular. This change does not occur to the marked degree seen in the tubular cells. Later some of the glomeruli appear shrunken and the capsular space is correspondingly increased. Clear droplets and amorphous pale eosin staining material appear in the glomerular spaces and the lumens of the convoluted tubules.

The nature of the material in the swollen tubular cells was not determined. Staining by sudan IV for fat produced negative results. The tissues were not suitably fixed for the demonstration of glycogen.^{5a}

After injection of sucrose into the blood stream, the sugar is not metabolized and probably but little diffusion occurs into the tissues. The sucrose is almost completely excreted by the kidneys within a few hours by the process of glomerular filtration. Clearance of sucrose from the blood has been shown to be similar to that of urea or creatinine and is comparably decreased in renal diseases with the exception of nephrosis.⁶ The

5a. In cases studied since this manuscript was submitted, no glycogen could be demonstrated in involved tubular cells by Best's carmine stain.

6. Winkler, Alexander W., and Parra, Jose: The Measurement of Glomerular Filtration: The Creatinine, Sucrose and Urea Clearances in Subjects with Renal Disease, *J. Clin. Investigation* 16: 869 (Nov.) 1937.

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SUMMARY

1. In six cases distinctive renal lesions were found after the intravenous administration of hypertonic solutions of sucrose. Similar lesions have been observed in experimental animals after injection of sucrose.

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mechanism by which sucrose damages the tubular cells is not known. It seems probable that passage of sucrose through the tubular lumen, possibly with some slight reabsorption, may cause disturbance in the water balance of the individual tubular cells. The marked diuresis resulting from injection of sucrose may be due in some degree to interference with the reabsorptive function of the tubules as a result of this damage.

No conclusions as to the effect of the lesion on renal function can be drawn from these cases. The observation of Helmholtz¹ and of Lindberg, Wald and Barker² suggest that, in experimental animals, function is not diminished unless hypertonic solutions of sucrose are repeated several times without adequate intervals for recovery. Since most tests of renal function will measure only very gross changes in the efficiency of a normal kidney, it cannot be concluded on the basis of these tests alone that no functional change in the efficiency of tubular function, considering the degree of morphologic change in the tubules and its widespread nature. Until more information is obtained concerning this,

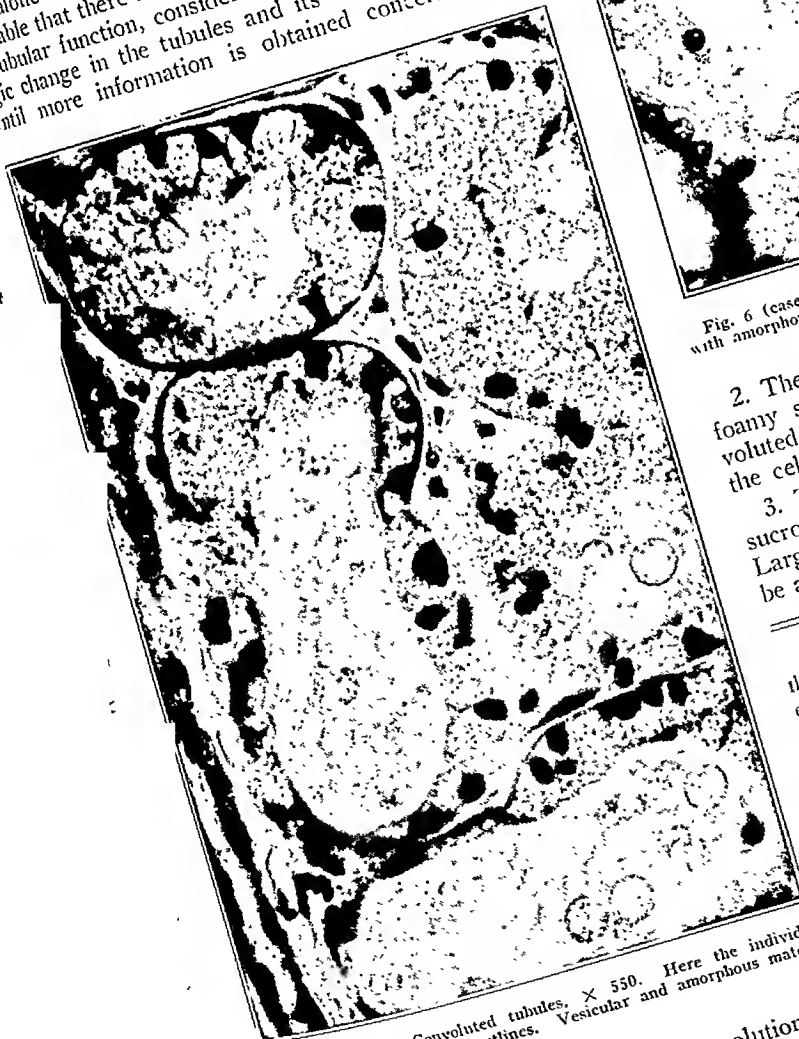


Fig. 5 (case 2).—Convoluted tubules. $\times 550$. Here the individual cells have lost their definite outlines. Vesicular and amorphous material is prominent in the lumens.

it seems inadvisable to inject hypertonic solutions of sucrose into individuals with renal arteriosclerosis, chronic nephritis or other types of renal damage. In any case, repetition of administration should be avoided, except at intervals of several weeks.

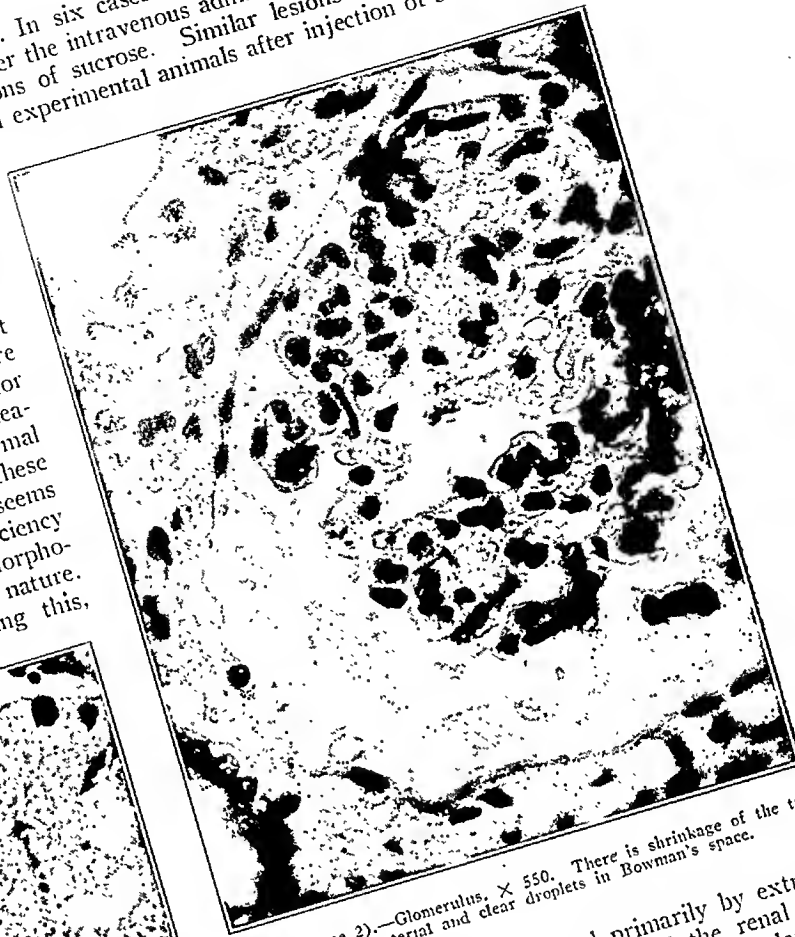


Fig. 6 (case 2).—Glomerulus. $\times 550$. There is shrinkage of the tuft, with amorphous material and clear droplets in Bowman's space.

2. The lesion is characterized primarily by extreme foamy swelling of the lining cells of the renal convoluted tubules. The change may progress to death of the cells.

3. The administration of hypertonic solutions of sucrose to patients with renal damage is inadvisable. Large or repeated intravenous doses of sucrose should be avoided.

Diabetic Coma.—All these causes of diabetic coma have this in common: They lead to the body's inability to burn enough sugar for proper combustion of the fats furnishing body heat. As has been noted, fats are substances with even numbers of carbon atoms in their molecules which, when not completely burned, form ketones or organic acids; carbohydrates (sugars) supply the heat which is needed for the complete combustion of these fats within the body, and insulin makes it possible for the carbohydrates to burn. The cycle, therefore, is obvious: no insulin, no burning of sugars; no sugar combustion, no complete fat combustion. When fats do not burn completely, they leave this harmful acid residue, and the first stage of diabetic coma is the resulting body acidosis. Ketones may appear for several reasons, all of which have one thing in common: An insufficient amount of carbohydrate is being burned for the amount of fat metabolized. Ketosis may result from starvation or from exclusively fat diets, as well as from diabetes.—Pollack, Herbert. *Modern Diabetic Care*. New York, Harcourt, Brace and Company, 1940.

SOLUBLE IODOPHTHALEIN IN TREATMENT OF CARRIERS OF TYPHOID-PARATYPHOID GROUP

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AND

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The management of carriers of the typhoid-paratyphoid group of bacteria presents a difficult problem. In spite of many attempts to free the carriers from bacteria there is no known method which will accomplish this task with a reasonable degree of success.

Older reports as to successful treatment of such carriers with various drugs have not fulfilled expectations. In the most extensive review of this subject in recent years (Browning¹) the conclusion is reached that drug treatment, chemotherapy, physical therapy, measures aimed at alteration of the reaction of the flora of the intestine and vaccine therapy have all proved ineffective.

It is not surprising, therefore, that most public health agencies assume a rather conservative attitude toward such carriers. In the state of Illinois carriers are prevented from engaging in certain occupations such as food handling and dairy work and are supervised in order to avoid the spread of the disease. Over 300 typhoid carriers have been detected in recent years and are now under supervision in Illinois according to a report by the state department of public health.²

In view of the futility of drug therapy there has been an increasing tendency in recent years to perform cholecystectomy on carriers of the typhoid-paratyphoid group. Cholecystectomy has effected cure in 75 per cent of the cases when the gallbladder was found to be the site of infection.³

There is indeed much evidence for the view that the carrier state is maintained by the gallbladder. Such a gallbladder seems to be acting as a test tube, containing the bile medium in which the bacteria propagate without necessarily affecting the gallbladder itself (Garbat³). This opinion is supported by experiments with rabbits and other animals, in which it has been demonstrated that after intravenous injection of typhoid bacilli the organisms are excreted by the liver and may soon appear in the bile of the hepatic duct (Meyer, Neilson and Feusier⁴).

The value of cholecystectomy in the treatment of typhoid carriers is well established. This is particularly true when, through the use of duodenal drainage, the duodenal fluid is found to contain typhoid bacilli (Bigelow and Anderson⁵). Yet there exists considerable and justifiable hesitancy on the part of the physician to submit an otherwise healthy individual to cholecystectomy, when frequently enough the gallbladder after removal appears to be normal.

For this reason an attempt was made to cure a carrier of *Bacterium paratyphosum* A by conservative procedures before considering surgical treatment. After all other conservative measures, including sulfanilamide, had failed, a surprising success was noted with soluble iodophthalein.

This dye is commonly used in x-ray visualization of the gallbladder and has previously been suggested for the medication of typhoid carriers (Onodera, Murakawa and Liu⁶). However, the results were not uniformly satisfactory. It is believed that the mode of administration plays a great part in the final success.

While no definite claim can be made as to the permanent success and value of a suggested treatment on the basis of a single case, it is our purpose in this paper to call attention to this form of treatment of carriers of the typhoid-paratyphoid group and to report the investigation of the possible bactericidal properties of soluble iodophthalein.

REPORT OF CASE

Miss E. M., a registered nurse aged 23, was admitted to the Michael Reese Hospital with a history of diarrhea for the past seven months. The stools were watery and light, containing a great deal of mucus. There were abdominal cramps, frequently associated with the bowel movements. The evacuations sometimes numbered ten daily. While the acute symptoms had almost subsided before hospital admission, the patient was asked to enter the hospital because a bacteriologic examination of the stools had revealed the presence of *Bacterium paratyphosum* A.

Physical examination did not reveal anything significant. The patient appeared somewhat underweight but had not lost weight recently. The heart and lungs were normal, the abdomen was slightly distended and there was some tenderness over the ascending and descending colon. Rectal examination was negative. There was no elevation of temperature at any time during the hospital stay. Repeated blood counts, urine and blood pressure examinations were consistently normal.

The patient was placed on a regimen of low residue diet and bed rest. Daily specimens of stool were sent to the laboratory and in each instance paratyphoid A bacilli were isolated. An autogenous vaccine was prepared. The patient received increasing doses of the vaccine every second day hypodermically, but there was no change in the bacteriologic flora of the stools. On three separate occasions the patient's blood serum was examined for paratyphoid A agglutinins with negative results.

A further attempt was made to eradicate the bacilli with sulfanilamide. Over a period of eight days, 200 grains (13 Gm.) of sulfanilamide was administered orally. However, the bacillary excretion remained constant. Finally, large doses of bismuth subcarbonate as well as kaolin were given without curative effect.

Duodenal drainage revealed, by direct smear, the presence of gram-negative bacilli. An attempt to culture them on blood agar, Endo's agar and various broths failed.

After several days 4 Gm. of soluble iodophthalein was administered orally in the form used for x-ray visualization of the gallbladder. On the following day bacteriologic examination of the stool failed to reveal the organisms. Administration of the dye was repeated twice in the next six days. Subsequent daily stool specimens remained negative for *Bacterium paratyphosum* A.

The patient was discharged with the instruction to take the dye once a week for one month. She was kept under observation for the following seven months, and repeated stool examinations during this period were consistently negative.

BACTERICIDAL TESTS

Soluble iodophthalein administered orally to the carrier of *Bacterium paratyphosum* A was so surprisingly

6. Onodera, N.; Murakawa, G., and Liu, S.: Ueber eine neue Behandlung von Typhusbazillenträgern, *Deutsches Arch. f. klin. Med.* 171:503, 1931.

From the medical and bacteriologic department of the Michael Reese Hospital.

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5. Bigelow, G. H., and Anderson, G. W.: *Cure of Typhoid Carriers*, *J. A. M. A.* 101:348 (July 29) 1933.

PROSTIGMINE—PERLOW

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tion of the cutaneous temperature lasted from two to six hours. The degree of elevation depended on the degree of vasospasm present. The present report deals with the use of prostigmine in the treatment of some of the peripheral circulatory disturbances. We have used this drug clinically in thirty-one cases: eleven cases of thrombo-angiitis obliterans, four of arteriosclerosis, nine of Raynaud's syndrome, five of acrocyanosis and two of acute vascular occlusion. At first each patient was given a subcutaneous injection of 0.5 mg. of prostigmine and the temperature of the involved extremity was noted to determine the degree of vasodilatation produced. Then patients were given 7.5 mg. of prostigmine orally three times daily at six hour intervals for a week without any other treatment. The effect of this medication was noted. If no improvement occurred, the dose was increased to 15 mg. of prostigmine three times daily. When and if improvement did result, such as increase in the walking distance or an elevation of the digital cutaneous temperature, a placebo tablet of the same size and shape as the prostigmine was substituted to rule out the possibility that the result was due to the psychic element of taking medication. The results in our cases are shown in the accompanying table.

RESULTS

Of the eleven cases of thrombo-angiitis obliterans there was an improvement in the walking distance and the elevation of the digital skin temperature in seven cases. In no improvement in four. The latter were cases of long standing organic occlusion with apparently made. Element of vasospasm. One of the patients who decreased with prostigmine had a rise of 6 degrees C. in the cutaneous temperature, and the walking distance increased from half a block to a distance of one mile. Another patient who improved was a woman with thrombo-angiitis obliterans of three extremities; ulcers of the fingers of long duration healed in four weeks with prostigmine therapy alone.

There was slight improvement in only one of the four cases of arteriosclerosis. The degree of vasospasm present was very slight in all of these cases, as determined by peripheral nerve anesthetization.

Of the nine cases of Raynaud's syndrome there was a marked improvement, i. e. complete disappearance of the attacks of vasospasm, in five cases with moderately severe attacks. There was no improvement in three latter cases attacks of vasospasm continued even when the dose of the prostigmine was increased to 30 mg. four times daily. In one of the cases in which improvement occurred a coexisting sclerodactylia improved as the attacks of vasospasm recurred after a previous sympathetic ganglionectomy, and these symptoms were relieved by prostigmine. An interesting observation in another case was the disappearance of the vasospasm of the angina pectoris when prostigmine was administered. These attacks recurred along with the vasospasm of the extremities when a placebo was substituted. However, in one of the severe cases of Raynaud's syndrome with a coexisting angina pectoris neither the angina pectoris nor the vasospasm of the extremities improved with prostigmine therapy. This problem of angina pectoris is being studied further.

Of the five cases of acrocyanosis there was marked improvement with return of the color of the hands to

normal in one case. In three other cases, which were severe, prostigmine caused the cutaneous temperature to rise to normal but the reddish cyanotic color of the hands remained. The fifth case showed no improvement at all with the doses used.

In addition to the foregoing cases prostigmine was administered subcutaneously in two cases of acute arterial occlusion. The first patient, with embolic occlusion of the left iliac artery, was seen four days after the onset. The extremity was cold and cyanotic up to the mid thigh even though papavarine had been administered throughout the illness. Within four hours after prostigmine was given the cold blue area had receded to below the knee. Unfortunately this patient died a day later from a coexisting heart disease, so the observations were necessarily incomplete. In the other case there was an acute thrombotic occlusion of both femoral arteries. The extremities were blue, cold and anesthetic to the knees. Improvement was noted within two hours after prostigmine was administered, and the improvement continued with prostigmine therapy until by the end of one week, both feet were warm and of normal appearance and all that remained was a small area of cutaneous gangrene at the ends of the left second, third and fourth toes.

In the cases of organic vascular occlusion that improved with prostigmine therapy the resultant improvement in circulation remained when, after several months, prostigmine was discontinued. Apparently a collateral circulation developed when the element of spasm was removed. That this was not coincidental is evidenced by the failure to bring about improvement in those cases by other therapeutic measures before prostigmine was given and by the fact that there was a return of the symptoms when prostigmine was stopped early in the course of treatment. In the cases with primary vasomotor disturbances such as Raynaud's syndrome and acrocyanosis the improvement lasted only as long as prostigmine was administered.

We found that most of our patients were able to tolerate doses of from 45 to 60 mg. of prostigmine orally without having abdominal cramps. In the few cases in which abdominal cramps and diarrhea did develop from the use of the drug a tablet of 1/100 grain (0.00065 Gm.) atropine placed under the tongue gave relief very quickly. As in the previous report,¹¹ we found that subcutaneous injections of 0.5 mg. of prostigmine produce a greater and more prolonged temperature elevation than occurs when the drug is administered orally.

CONCLUSION

The results in thirty-one cases of peripheral circulatory disturbance indicate that prostigmine is an excellent vasodilator and as such is a useful adjunct in the treatment of peripheral circulatory disturbances in which vasospasm is a factor. The mechanism of its action, as has been shown by others, is neutralization of choline-esterase, thus permitting the cholinergic substances normally present to act at the parasympathetic nerve endings.

There is an improvement in the collateral circulation in the cases with occlusive vascular disease when the element of vasospasm is relieved. In the cases with mild primary vasomotor disturbances in the extremities, relief from the symptoms continues as long as prostigmine is administered and recurs when it is stopped.

185 North Wabash Avenue.

PARALYSIS OF THE SERRATUS MAGNUS MUSCLE

CAUSED BY LESIONS OF THE LONG
THORACIC NERVE

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Unusual winging of the scapula is a deformity which is fairly well recognized as secondary in some instances to paralysis of the serratus magnus muscle. Description of this syndrome was first made by Velpeau¹ in 1825. Sir Charles Bell² in 1827 described the nerve supply of the serratus magnus muscle. The condition has been described by various writers since the time of Velpeau and Bell, notably by Marchessaux³ in 1840 and by Duchenne¹ in 1867. Several methods of treatment have been suggested from time to time and several operative procedures have been offered. In order to estimate the relative incidence of this condition and



Fig. 1.—Paralysis of the serratus magnus muscle resulting from a miscarriage and the patient's habit of raising herself from bed by her right arm: *a*, winging of the right scapula with the arms pendent; *b*, oblique view of the right scapula. Picture taken on June 1, 1927.

to aid in our ability to prognosticate the end result in an instance of the disease newly seen, this study was undertaken.

The function of the serratus magnus muscle is mainly to aid in fixing the scapula to the thorax when the arm is elevated, particularly anteriorly, and also to rotate the scapula in abduction and during forward elevation of the arm at the shoulder. Stookey has proposed a more elaborate interpretation of the functioning of the serratus magnus muscle than is set forth in the foregoing sentence. He wrote that during elevation of the arm there are three cycles: the first is carried out by the deltoid and supraspinatus muscles, the second by the serratus magnus, trapezius, rhomboideus and levator scapulae muscles, and the third by the action of both the deltoid and supraspinatus muscles.

From the Section on Orthopedic Surgery, the Mayo Clinic.
Abridgment of thesis submitted by Dr. Overpeck to the faculty of the Graduate School of the University of Minnesota in partial fulfillment of the requirements for the degree of M.S. in Orthopedic Surgery.

1. Quoted by Souques, A., and Castaigne, J.: *Contribution à l'étude de la paralysie isolée du muscle grand dentelé*, Nouv. iconog. de la Salpêtrière 12: 177-196 (May-June) 1899.

2. Bell, John, and Bell, Charles: *The Anatomy and Physiology of the Human Body*, fifth American edition, New York, Collins & Co., 1827, vol. 1.

3. Marchessaux, L.: *Observation de paralysie du muscle grand dentelé, avec réflexions sur cette affection*, Arch. gén. de méd. 52: 313-318 (March) 1840.

SYMPTOMATOLOGY

The most prominent symptom of isolated paralysis of the long thoracic nerve and the serratus magnus muscle is pain. Pain usually extends along the base of the neck and downward over the scapular and deltoid regions on the affected side. Frequently there is a painful region in the axilla, especially over the mid-axillary line and downward as far as the sixth or seventh rib. There may be extension of the pain upward to the back of the head or downward over the arm and into the forearm and hand. Following injury to the muscle there is often severe pain at the site of the trauma, which may be under the scapula, deep in the axilla or over the digitations of the muscle in the anterior portion of the wall of the thorax. The severity of the pain aids the physician in making a differential diagnosis, because trauma to the muscle produces a more severe type of pain than that seen with involvement of the nerve only.

The second most common symptom is the patient's fatigue on elevating the arm or the inability fully to elevate the arm. The weakness may arise unnoticed by the patient. A third symptom is the abnormal prominence of the scapula, a sign more frequently noticed by others than by the patient himself. The time of onset of the pain is usually immediately after acute trauma but is variable in the case of other types of trauma and infection. Weakness of abduction does not begin at the time of the onset of pain, except when acute traumatic lesions are present.

On examination of the patient, the principal clinical observations are weakness of the pushing power of the affected shoulder and weakness of the abducting power of the arm above the horizontal plane. Winging of the scapula is always present when the arm is fully abducted or is elevated anteriorly. Some winging also occurs in many instances in which the arm is pendent.

Isolated paralysis of the long thoracic nerve or of the serratus magnus muscle occurs rarely. Remak¹ reported three cases in a series of 12,000 neurologic examinations. This produced a percentage of 0.025 in such cases. At the Mayo Clinic there have been twenty-eight cases in which diagnosis of the condition was made, resulting in a percentile incidence of about 0.0026. There were nineteen men and nine women in the series. There was involvement of the upper right extremity in twenty-two cases, of the upper left extremity in five cases, and bilateral involvement in one case. Twenty-two patients were between the ages of 20 and 50 years. Nineteen of the patients worked at some form of heavy labor.

CAUSATION

Trauma was the chief causative agent in the present series, twenty-three instances of the condition, or 82 per cent of the total number of cases, being the result of some type of trauma. The various types of trauma were classified as (1) the acute type, (2) the recurrent irritative type and (3) the contributive type of trauma.

There were fifteen of the twenty-eight cases, or 53 per cent, in type 1, the acute type of trauma. This included one case of paralysis of the long thoracic nerve subsequent to traction on the patient's hands and arms during birth. One instance of the condition followed operative removal of diseased cervical lymph glands in which the long thoracic nerve was directly injured. Another instance followed an operation on the face and was related to trauma to the shoulder girdle while the patient reclined on an unpadded table. One instance occurred after the patient made a vigorous swing at a

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punching bag and missed it. A horse kicked one patient in the axilla, injuring the long thoracic nerve and producing the lesion. An energetic pull on the hand clutch of a mechanical device by a patient brought about paralysis of the long thoracic nerve. A golfer missed the golf ball on a lusty swing and the lesion developed therefrom. In addition to the cases cited, there were eight in which the condition resulted from falls on the shoulder girdle. It has been shown that the coracoid process may be forced against the underlying first or second rib and thus injure the intervening long thoracic nerve.

Five patients exhibited evidence of acute traumatic separation of a portion of the serratus magnus muscle, in addition to injury of the long thoracic nerve. The muscle may be pulled away from the scapula or from the digitations attached to the ribs. The question of injury to nerves or muscles in producing the clinical signs and symptoms in such cases as are being described is one that has never been settled completely. Unquestionably the majority if not all of the patients affected have an injury to a nerve or nerves. Actual tear through the muscle, or separation of the muscular attachment, should be fairly easily diagnosed at the time of the injury. However, when patients are seen later in their convalescence the differential diagnosis may be more difficult than it would have been at or near the time of injury. Five of our patients had diagnoses of separation or tear of the attachment of the muscle to the scapular border. None of these patients underwent surgical exploration, however, and there may be some doubt as to the presence of the muscular tear. Absolute diagnosis probably can be made only by open exploratory operation.

Under type 2, the recurrent irritative type of trauma, there were classified seven cases, which comprised 25 per cent of the total number of cases. In one instance the lesion resulted after the patient, a carpenter, had carried boards on his shoulder over a period of three years. Pressure on the shoulder, combined with angulation of the patient's head to the opposite side, has been cited as a causative factor by several writers. Trauma to the side of the neck in the region of the scalenus medius muscle has been observed to have been

of the crutch which fits into the axilla to press on the lateral thoracic wall over the course of the long thoracic nerve. Another instance of the condition resulted from a cast which pressed persistently into the axilla. Two instances followed a patient's postural habit of sleeping on the outstretched arm.

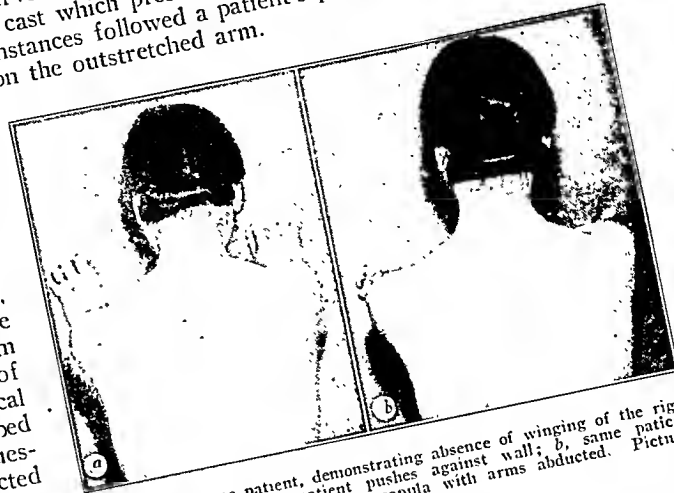


Fig. 3.—a, same patient, demonstrating absence of winging of the right scapula even when the patient pushes against wall; b, same patient, absence of winging of the right scapula with arms abducted. Pictures taken Nov. 17, 1938.

Potts⁴ in 1928 indicated that injury to the long thoracic nerve occurred in conjunction with patients sleeping on the abducted arm and rolling about during sleep, so that the nerve fibers to the inferior digitations of the serratus magnus muscle were stretched.

One patient in our series suffered the lesion following a miscarriage. She frequently lifted herself from the bed on her right arm and thereby stretched the thoracic nerve. The final case in this group concerned a trauma associated with husking corn.

Skellern⁵ in 1913 cited a similar case in which the trauma supposedly resulted from the fact that a machinist had to reach fully forward more than 800 times in the course of each daily shift of work.

One case was classified under type 3, the combined type of trauma, the percentage of this type therefore being 3.5 of the total number of our cases. In the history of the patient concerned there was a definite relationship of the trauma to strenuous work and exposure to bad weather. Foucar⁶ in 1933 described a case in which he believed the condition resulted from a combination of cervical adenitis and tennis playing.

Another causative agent was infectious conditions. In the present series, one instance of the paralysis developed subsequent to influenza and one instance followed brachial neuritis. These two cases comprised 7 per cent of the total. There were three cases, or 11 per cent, of unknown causation:

TREATMENT

Treatment may be divided into two types: conservative and operative. Various types of conservative measures may be tried, such as supporting splints and bandages and physical therapy. The accompanying illustrations show the

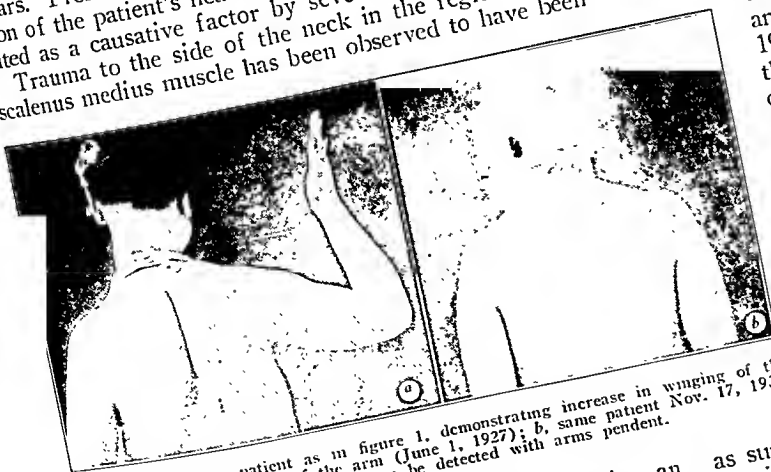


Fig. 2.—a, same patient as in figure 1, demonstrating increase in winging of the right scapula on abduction of the arm (June 1, 1927); b, same patient Nov. 17, 1938, in whose right scapula no winging can be detected with arms pendulous.

increased when the person who had been carrying an object on one shoulder unloaded the object from the shoulder with a powerful shrug. One of the patients in the present series was afflicted by the lesion following the use of crutches in conjunction with a fractured leg. Such an instance should emphasize the importance of patients' maintaining most of their weight on the handle of the crutch and to avoid allowing that portion

4. Potts, C. S.: Isolated Paralysis of the Serratus Magnus; Report of a Case. *Arch. Neurol. & Psychiat.* 20: 184-186 (July) 1928.
5. Skellern, P. G., Jr.: Serratus Magnus Palsy with Proposal of a New Operation for Intractable Cases. *Ann. Surg.* 57: 909-915 (June) 1913.
6. Foucar, H. O.: The "Clover Leaf" Sling in Paralysis of the Serratus Magnus. *Brit. M. J.* 2: 865-866 (Nov. 11) 1933.

condition of one patient of our series both at examination in 1927 and after a course of physical therapy. Many mechanical appliances have been devised, but none are adequate to substitute for the function of the serratus magnus muscle. Some type of mechanical support should be tried in order to relieve the patient of pain, if possible, and to relax tension on the serratus magnus muscle. Persistent efforts in conservative measures may give the patient complete recovery, as is demonstrated by the follow-up observations on our own group of patients. Reassurance on this basis may do much to aid the patient's recovery. Certainly, avoidance of heavy muscular effort involving the affected muscle should be advised.

A review of the literature revealed that there were the following types of surgical treatment: (1) fixation of the scapula to the underlying ribs, (2) substitution of an adjacent subscapular nerve for the long thoracic nerve, and (3) transplants of the various muscles of the shoulder girdle.

Only a temporary improvement followed fixation of the scapula with wire to the underlying ribs. The same resulting support would be obtained if an abduction arm brace should be used.

Skilern⁵ in 1913 reported a plan for substituting one of the three adjacent subscapular nerves for the long thoracic nerve, but no cases in which this was done have been reported. Samter⁷ in 1930 reported an excellent result of twenty-two years' duration in which he transplanted a portion of the pectoralis major muscle from the humerus to the serratus magnus muscle. Hass⁸ in 1931 reported a good result, after fifteen years, accruing from transplantation of the teres major muscle from the humerus to the digitations of the serratus magnus muscle. Many other similar attempts at transplantation of muscle have not been successful. The results of surgical treatment have not been considered, on the whole, worth the operative risk, work and expense.

In the present series, only conservative treatment was used; it consisted of physical therapy and in addition, in some instances, elevation of the arm of the patient for a period of several weeks.

A follow-up of fifteen patients indicated good results in eleven instances. There was complete recovery for seven of these eleven patients, whereas four patients enjoyed recovery of strength but had persistent winging of the scapula. Three patients whose conditions were caused by trauma did not recover.

SUMMARY AND CONCLUSIONS

Paralysis of the long thoracic nerve and the serratus magnus muscle is a rare lesion. It occurs most frequently among men who do heavy labor and who are between the ages of 20 and 50 years. Trauma is the chief causative factor. Weakness of the power of complete abduction and winging of the scapula are salient physical observations. Physical therapy and support of the extremity are the most universally successful methods of treatment. The prognosis for restoration of function is good in the majority of instances of the condition.

7. Samter: Sur le traitement opératoire de la paralysie du grand dentelé, *abstr. J. de chir.* 1: 299 (Feb.) 1930.

8. Hass, Julius: Muskelplastik bei Serratuslähmung (Ersatz des gelähmten Musculus serratus anterior durch den Musculus teres major) *Ztschr. f. orthop. Chir.* 55: 617-622, 1931.

Clinical Notes, Suggestions and New Instruments

FRACTURE OF THE POSTERIOR ARCH OF THE ATLAS

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Statistics show that the "broken neck," as spoken of by the public, is not necessarily or usually fatal.¹ Fracture of the bodies of the lower cervical vertebrae, as well as of the atlas, is rarely followed by death. This is not true of fracture of the odontoid process, which is the mechanism of death by hanging. In fractures of the atlas a 13.7 per cent mortality has been reported since 1900.² The strong transverse ligament that crosses the odontoid posteriorly serves to preserve the normal anatomic relation between the atlas and the surrounding structures, even in fracture of each posterior arch.

The rarity of fracture of the atlas is attested by the fact that only ninety-three cases had been reported to 1938.^{1a} Situated at the base of the skull and surrounded by strong bundles of muscle, the atlas is rarely fractured as the result of a direct trauma. The usual mechanism is the pressure of the occiput on a rigid cervical spine with the muscles of the neck relaxed, conditions which usually obtain in automobile and railroad accidents. The type of accident that resulted in the fracture



Fig. 1 (case 1).—Note the compression of the left lateral mass and the shift of the atlas to the right.

described in case 1 is most unusual, but the factors just mentioned were present. The usual fracture site is in the posterior arch (unilateral or bilateral) near the lateral masses where the groove for the vertebral artery narrows the bony structure. Fracture of the anterior arch, the lateral masses and the transverse processes are quite unusual.

The history, the physical condition of stiffness and painful restricted movement of the neck, and the roentgenograms make the diagnosis. Plaut prefers lateral roentgenograms.^{1b} We have secured additional information by oblique views taken with the patient supine and the head turned if possible to a 45 degree angle, first to one side and then to the other. The head is flexed to avoid overlapping of the occiput. The Bucky technic is used. This technic is possible only in the period of healing when plaster fixation has been removed. It is not advised in the acute stage. A second method of securing oblique views is to place the patient in the usual lateral skull position and center the tube over the atlas. The posterior arches are well visualized by this technic. To secure antero-posterior views the open mouth technic is employed. Ottonello's

1. Plaut, H. F.: (a) Fracture of Atlas in Automobile Accidents, *J. A. M. A.* 110: 1892-1894 (June 4) 1938; (b) *Radiology* 29: 227-231 (Aug.) 1937.

2. Jefferson, G.: Remarks on Fractures on the First Cervical Vertebra, *Brit. M. J.* 2: 153 (July 30) 1927. Plaut.^{1a}

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method has been used and found satisfactory.³ To secure views of the anterior arch, a dental film may be placed in back of the oral cavity and the x-rays projected from the back of the neck. With a patient in a cast, only lateral views are satisfactory. The employment of a castex bandage, which is radiolucent, is sometimes preferable.

From the roentgenologic standpoint, congenital bony defects must be differentiated from fractures. These defects are usually found near the posterior tubercle. When they are of considerable width (10 mm.) they must not be confused with fractures with displacement. Follow-up roentgenograms that show evidence of callus are important in differential diagnosis of fracture from congenital defect. At times, fractures of the atlas do not unite and end in pseudo-arthritis. The question is not simple and requires all the skill of an expert radiologist.⁴

Treatment of fractures of the atlas, whether of the lateral mass or of the anterior or posterior arch, is the same as treatment of fracture of the cervical spine elsewhere. The patient's neck is hyperextended in bed by traction and a plaster jacket of the Calot type applied when the acute stage is over. This jacket is worn until healing occurs. At this time the neck should be supported by a brace and physical therapy is given. The total duration of treatment is as for any cervical spine injury, about seven to twelve months.



Fig. 2 (case 1).—Note the complete longitudinal fracture of the left posterior arch of the atlas near the posterior tubercle.



Fig. 3 (case 2).—Note the complete longitudinal fracture of the left posterior arch of the atlas and compression fractures of the bodies of the third and fifth cervical vertebrae.

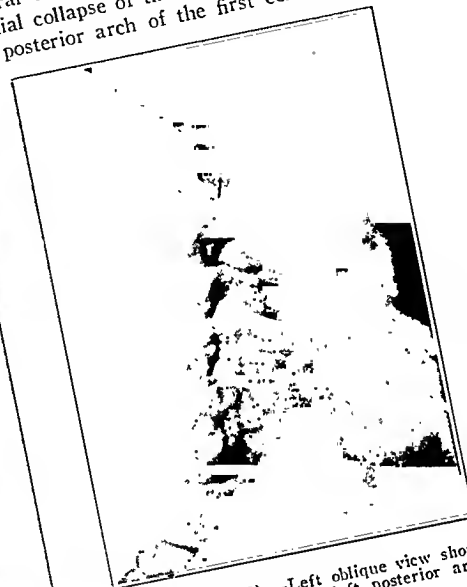


Fig. 4 (case 2).—Left oblique view showing the fracture of the left posterior arch of the atlas.

REPORT OF CASES

CASE 1.—N. R., a man aged 22, sustained a fracture of the first cervical vertebra in a gymnastic accident at school when he landed squarely on his head in doing a turn on the parallel bars. He was admitted to the Hospital for Joint Diseases, March 29, 1938. X-ray examination (figs. 1 and 2) showed a compression fracture of the left lateral mass and a complete longitudinal fracture of the left posterior arch of the atlas near the posterior tubercle. There was a shift of the atlas to the right. He was placed in head and neck traction for two weeks and a Calot jacket was then applied. There were no other significant signs besides local tenderness and restriction of motion.

On June 10 the cast was removed and a castex bandage applied, which was later converted into a brace. On September 19 flexion of the neck was slightly limited and extension was complete. Lateral motion was limited and rotation to the right and left did not exceed 10 degrees. The neck was not tender and he discontinued use of the castex bandage. Examination Nov. 1, 1938, and April 1, 1939, showed flexion and extension to be complete. Passive rotation was almost complete, but

active rotation was about two thirds normal. Lateral motions were two thirds normal, the upper cervical spine moving as a unit rather than in its individual parts. On Sept. 18, 1939, the patient had no complaints referable to the neck. Rotation to the right was slightly limited and there was still some limitation of the lateral motions. The neck moved as a rod, as noted previously. Bony union at the fractured posterior arch was not present June 20, 1938, but was present September 9. On Jan. 1, 1939, sclerotic changes were noted about the left lateral mass and there was narrowing of the intervertebral space between it and the body of the second cervical segment. The fracture of the left posterior arch was healed by bony union.

CASE 2.—M. C., a Negro aged 52, on Oct. 9, 1937, fell from a platform a distance of about 30 feet to the main floor of a tunnel and was struck over the neck by a street car rail. He injured his neck, skull and right scapula. The right lung was pierced. He was unconscious and taken to a hospital. It was found that he had sustained a fracture, with no displacement of the fourth and fifth ribs on the right side, 1 or 1½ inches from the vertebral articulations. A pneumothorax on the right side with partial collapse of the right lung developed. A fracture of the left posterior arch of the first cervical ver-

tebra was seen on roentgenograms. The right scapula showed comminution. He remained at the hospital until November 1. Examination December 21 showed numerous disabilities due to his fractured shoulder and ribs which are irrelevant here. He complained of sharp pain in the neck, especially at night. This pain was usually dull and radiated to both shoulders. Turning the head to the left increased the pain. He believed that the street car rail had not hit his head directly. Lateral motions of the neck were limited. Flexion and extension of the neck as well as rotation were fairly good. Tenderness was present over the second and over the fifth spinous processes. The cervical spine in the region of the second and third cervical vertebrae was kyphotic. The patient was admitted soon after this to the Hospital for Joint Diseases. The head and neck were kept in traction on a convex frame. The shoulder was also maintained in traction in abduction. The neck was there-

after immobilized in a Calot jacket. A brace was worn from March 7 to July 7, 1938. On Sept. 2, 1938, all motions of the neck were complete. There were no tender points. He occasionally had slight pains in the upper part of its individual parts, where previously it had now moved well in a unit. On Aug. 23, 1939, he complained that he had a dull ache of the neck at times, usually in rainy weather, and a fairly

3. Jacobs, L. G.: Second Cervical Vertebra by Ottonello's Method. *Radiology* 31:412 (Oct.) 1938.
4. Lawrence, W. S., and Anderson, W. D.: Rare Developmental Anomaly of the Atlas, *Radiology* 28:55-57 (Jan.) 1937. Plaut.¹⁶

constant dull ache of the right shoulder. Physical examination of the neck was as before.

Roentgenograms taken Dec. 2, 1937 (fig. 3), disclosed a complete longitudinal fracture of the left posterior arch of the atlas together with a compression fracture of the bodies of the third and fifth cervical vertebrae. There was slight

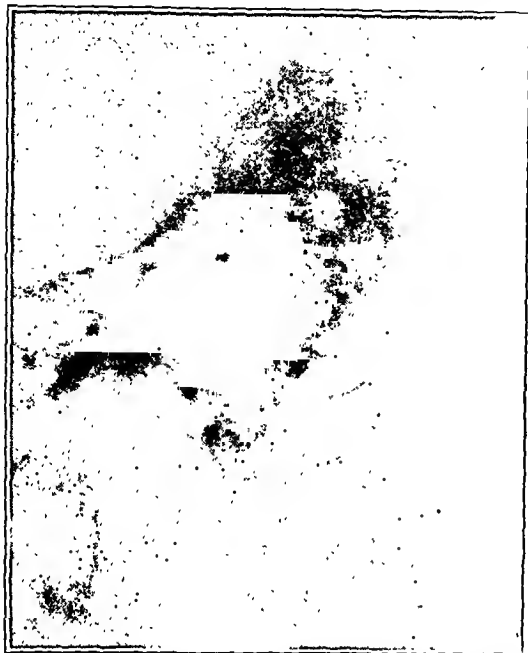


Fig. 5 (case 2).—Left oblique view showing bony bridging at the fracture site in the left posterior arch of the atlas. Compare with figure 4.

posterior displacement of the body of the fifth cervical vertebra with marked narrowing of the intervertebral space between the fifth and the sixth cervical vertebra. Oblique views taken on December 27 showed similar conditions (fig. 4).

Roentgenograms taken March 7, 1938, demonstrated bony bridging of the fractured left posterior arch of the atlas. This



Fig. 6 (case 2).—Lateral view showing bony bridging at the fracture site in the left posterior arch of the atlas. Compare with figure 3.

(fig. 6). Osteo-arthritic changes of the fourth and fifth cervical vertebrae were noted. There was still diminution of the height of the third and fifth but the fracture had healed well. There was some narrowing of the intervertebral spaces between the fourth and fifth and the fifth and sixth cervical vertebrae. The fracture of the atlas was well healed.

SUMMARY

Of two cases of fracture of the posterior arch of the atlas, one was associated with a crushing fracture of a lateral mass and the second with a fracture of other bodies of the cervical spine, together with fractures of other skeletal structures.

It would seem that fracture of the posterior arch of the atlas is not an independent fracture but is associated with fracture of the cervical spine at other points.

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Special Articles

THE PHARMACOPEIA AND THE PHYSICIAN

THE USE OF DRUGS IN ASTHMA

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This is one of the second series of articles written by eminent authorities for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—Ed.

As knowledge of asthma increases, it becomes more and more clear that the wheezy breathing is merely a symptom. The important part of the treatment must be to find and remove the cause. What good are drugs if the patient is going to lose all his symptoms within a few hours after moving to the clean environment of the hospital or even to another house, or if his asthma will clear as soon as the cat or the dog or perhaps the kapok mattress is eliminated? However, such a simple happy outcome occurs only in the simple "textbook" cases, which comprise only a fraction of the total number. The great number of patients must have drugs of some sort for relief of real distress, and they may need other drugs for the treatment of the underlying causes of the asthma.

DRUGS FOR RELIEF

Drugs for relief are widely used and will be discussed in the order of their efficacy. When the attack of asthma is mild, simple measures will relieve it. The burning of "asthma powder," best made from equal parts of dried powdered stramonium leaves and potassium nitrate (saltpetre), gives off a smoke which, when inhaled, is often quite effective. Cigaretts prepared from these materials are on the market in several varieties. Objections include the danger of fire and the smell of the smoke, which some find disagreeable.

Ephedrine by mouth is useful. Its action is like that of epinephrine to stimulate the sympathetic nerves and so to overcome bronchoconstriction, to reduce vasodilatation and consequently to modify the overactivity of the mucous glands in the bronchial mucosa. It is given by mouth in the form of its salts, the sulfate or the hydrochloride, and in each form the dose varies from 0.025 to 0.050 Gm. (three eighths to three fourths grain). Ephedrine can be prescribed in capsules, in pills or in a fluid mixture, either a watery syrup or a dilute alcohol being used; a useful formula is given in the accompanying prescription.

The action of ephedrine is slow and so the dose is given best after the evening meal and not as late as

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bedtime. Small children and some adults will be kept awake by ephedrine, and it is on account of this exciting effect that combinations of various barbiturates with ephedrine have been put forward by the pharmaceutical houses. These combinations are often effective. For older men ephedrine should be prescribed cautiously, because it may irritate the prostate and bladder and cause dysuria.

Propadrine hydrochloride is derived from a base resembling ephedrine. Black¹ finds it useful in mild attacks, though less effective than ephedrine. The dose is 0.025 Gm. and is to be given by mouth in capsule form every two to four hours, as indicated.

Drugs given by inhalation in the form of a spray are often very useful for the relief of asthma and many patients depend on them. Their efficacy depends on the ability of the patient to inhale the spray and so to bring the drug into direct contact with the bronchial mucosa. The patient must be taught, therefore, to squeeze the bulb of the atomizer at the moment of

Ephedrine Sulfate in Aromatic Elixir

R Ephedrine sulfate	Gm. or Cc.
Elixir aromatic	0.75
Mix and label: Teaspoonful in water after supper; repeat once during the night if necessary.	to make 120.00

inspiration. The good effects of inhalation of a drug finely dispersed in air throw an interesting light on the mechanism of asthma as well as on the method by which inhaled substances are absorbed. Several drugs are used in sprays for the relief of the asthmatic paroxysms. In the order of their importance they are as follows:

Epinephrine 1:100 is most effective. It is a special preparation made ten times as strong as the ordinary epinephrine (adrenalin) 1:1,000 dilution. It was first proposed by Graeser and Rowe² in 1935 and should be used with the special type of glass nebulizer which is made for the purpose and is ordinarily dispensed with it as an "outfit." One must emphasize that this is "strong stuff" to be used only in the form of a spray, for within the year there have appeared several reports of serious reactions and at least one death when this strong material was used for hypodermic medication. The epinephrine 1:100 spray should bring relief within a few minutes even if the attack of asthma is quite severe, but the patient must know that two or three applications will take a little time to act. If it does not act, then the patient had better take the epinephrine 1:1,000 by needle. If it does act, the patient should understand that too much of the epinephrine 1:100 spray may injure the bronchial mucous membrane. There are a few fortunate patients who find that the "ordinary" 1:1,000 epinephrine can be used as a spray with successful relief of their attacks, but this is not common. Ephedrine sprays are not so effective as epinephrine, and neither are the other drugs related to ephedrine as useful as epinephrine. These, however, have another use in the local treatment of the nose and sinuses in asthma, as will be discussed presently. Epinephrine 1:1,000 by hypodermic injection is the treatment of choice when asthma from any cause

becomes severe and no longer yields to simple remedies. Epinephrine is effective by mouth only in rare instances. For hypodermic use the usual preparation is the 1:1,000 dilution of epinephrine hydrochloride. The dose is always important, for in most cases too much is given. Very often a dose of 0.25 cc. (4 minims) of the 1:1,000 dilution will relieve the asthma quite as well as a larger quantity, and when this dosage is employed disagreeable by-effects such as pallor, tachycardia and sweating are avoided. Epinephrine can be injected often—every hour or every half hour if necessary. This means that in severe cases relatively enormous total quantities are used. Patients who use as much as 30 cc. (1 ounce) of the 1:1,000 dilution in a week are not uncommon, and Waldbott³ describes one case in which 30 cc. a day was taken.

Can epinephrine do any harm if used continuously over long periods of time? So far no evidence has been found to indicate damage to the heart, liver, kidneys or any other organ, and the literature contains several reports of long standing asthma in which large amounts of epinephrine were taken daily for four or five years. In one such case Rackemann and Theiler⁴ figured that the quantity consumed in three years was 280 bottles of 30 cc. each.

Epinephrine in oil ("slow epinephrine") has been devised by Keeney and his co-workers.⁵ The powdered epinephrine base is suspended in sterile peanut oil in such proportions that 1 cc. of the oil contains 2 mg. of epinephrine. Doses of from 0.5 to 1.5 cc. are injected intramuscularly, usually in the late afternoon, and patients with asthma or with hay fever will often be relieved for as long as sixteen hours. For some patients the method is very satisfactory, but in others the doses cause local reactions (redness and swelling), which may be troublesome.

"STATUS ASTHMATICUS" describes the condition in which epinephrine is no longer effective. Such a condition is serious. The suffering is severe and, although deaths from asthma alone are not common, death may occur from suffocation produced by the formation of tough sticky plugs of mucus in the lumen of the larger as well as of the smaller bronchi. The treatment has been discussed by Waldbott.³ The first principle is to avoid those antigens (dusts, foods and particularly drugs) to which the patient may be sensitive, even though cutaneous tests do not always give positive results. The elimination of extrinsic factors such as the cat or dog or the dusty pillow and mattress should be a routine procedure, as also the elimination of suspicious foods and drugs. Transference to the clean environment of a hospital, which eliminates automatically many offending substances, has solved many a problem of sleepless nights and brought prompt relief to the patient and to every one concerned for him, including the physician. Obviously, these patients need rest and sleep and of course one is tempted to use sedatives of all sorts, but there are serious objections to the indiscriminate use of drugs in this condition.

DRUG ALLERGY

Drug allergy is of great practical importance, more so than is usually appreciated.

1. Black, J. H.: The Control of Allergic Manifestations by Phenyl-Propanol-Amine (Propadrine) Hydrochloride, *Journal-Lancet* 57: 101 (March) 1937.
2. Graeser, J. B., and Rowe, A. H.: Inhalation of Epinephrine Hydrochloride for Relief of Asthmatic Symptoms, *J. Allergy* 6: 415 (July) 1935.
3. Waldbott, G. L.: Emergency Treatment in Asthma (Asthmatic Crisis), *J. A. M. A.* 120: 1423 (April 30) 1938.
4. Rackemann, F. M., and Theiler, Hans: Asthma of Maximum Severity but with Great Improvement After Three Years, *J. Allergy* 7: 523 (July) 1936.
5. Keeney, E. L.: A Slowly Absorbed Epinephrine Preparation: Preliminary Report, *Bull. Johns Hopkins Hosp.* 62: 227 (March) 1938.

Acetylsalicylic acid (aspirin) is taken so freely by the American people that the development of hypersensitiveness to it is not uncommon. Once I almost killed a man with 5 grains (0.3 Gm.) of acetylsalicylic acid. Sensitiveness to this drug often occurs precisely in those cases in which asthma is severe. It almost defines a special group of difficult cases.

Morphine and its relatives may also cause trouble, and in more than one case the status has been maintained rather than improved by morphine. I recall a woman aged 45 in status asthmaticus for whom bronchoscopy was advised, and as a preparation one fourth grain (0.016 Gm.) of morphine sulfate was injected subcutaneously. After the operation her condition was desperate for a few hours and she was in the hospital for four weeks. On another occasion bronchoscopy was performed again for severe asthma, and this time without drugs of any kind. Relief was prompt and she was in the hospital only five days.

The barbitol group of drugs may produce hypersensitiveness, but reactions in the form of increased asthma are not common. For some reason sensitiveness to the barbiturates results more often in cutaneous lesions—urticaria, erythema and eczema—or occasionally in gastrointestinal symptoms.

This emphasis on the bad effects of drugs in asthma is necessary; I have seen more than one patient greatly improve when drugs were withheld. On the other hand, it is obvious that many patients with severe asthma have been much benefited by the careful use of acetylsalicylic acid, morphine or barbitol compounds. If the physician will appreciate the danger and will ask for the patient's previous experiences with drugs and then will abide by them, he will do good and not harm.

TREATMENT

Symptomatic treatment of severe cases is not easy, particularly if the physician hesitates to use those very drugs which first suggest themselves to him. Here is a man, gasping for breath, sometimes a little cyanotic with rapid pulse, sweating, and exhausted by the constant, never ending effort to breathe. He dares not eat or drink and is anxious and apprehensive. What can be done? In my experience the giving of water, salt and sugar quickly is the next step after the injection of epinephrine. If the patient can drink a quart or so of liquid, hot or cold, in the form of tea, soup, lemonade or even plain water, his condition will improve, but, if he cannot take such quantities by mouth, fluid must be given by vein. In severe cases of asthma, the heart and kidneys are usually sound and there is no objection to the intravenous infusion of fluid. A liter or two of physiologic solution of sodium chloride or 5 or 10 per cent dextrose may give great relief, especially if from 1 to 2 cc. of epinephrine from ampules of the 1:1,000 solution is added to the infusion flask and mixed thoroughly with the contents. Any solution for intravenous use should be made carefully and with water freshly distilled just before use, unless the water has been specially preserved in sealed bottles blown from a special kind of glass. The injection should be given slowly, so that at least one hour is taken for each liter to run in. Whether the addition of dextrose accomplishes anything more than to provide a little food is doubtful, and consequently there is little real choice between a 5 and a 10 per cent solution of dextrose. The latter provides more food but is more irritating to the vein. Concentrated sugar solutions for intravenous injection have been advised: 50 per cent dextrose by

Lepak⁶ and 50 per cent sucrose by Gay⁷—the object being to withdraw fluid from the lungs and incidentally to provide calories, but I have had no experience with either.

Transfusion of whole blood from healthy, nonallergic donors has been recommended and deserves a much wider use in severe asthma. It might have an important immunologic effect. Cooke⁸ has found experimentally that transfusion relieves hay fever. Presumably the donor should be fasting at the time of bleeding lest the patient be sensitive to some food or drug which the donor has recently taken; the type of blood should be compatible, of course.

What of drugs, especially if those which the physician first thinks of are precluded? Simple salts are safe. Chloral hydrate, paraldehyde and bromides are old fashioned sedatives but they also have simple chemical structures; they are useful and often are effective. So far they have not been found to give rise to hypersensitiveness, although a recent report by Kotz and others⁹ describes an idiosyncrasy to paraldehyde as used in large doses in obstetrics. The dose of chloral hydrate is from 1 to 2 Gm. (15 to 30 grains) to be given by mouth at night in water or syrup. Chloral hydrate should never be used on a day that the patient has taken any alcohol. Paraldehyde is usually given by rectum in amounts of from 5 to 10 cc., also at bedtime, but paraldehyde can be given by mouth in doses of one half to a whole teaspoonful (2 to 4 cc.). In this way it takes effect almost at once and the patient seems almost to collapse into a drowsy stupor. The danger is that the respiratory center may be depressed at the same time, but the danger is not great.

More drastic treatment may be necessary. Aminophylline, a double salt or a mixture of theophylline with ethylenediamine, is a purine compound the action of which is to improve capillary blood flow. It has been used as a stimulant to both heart and kidneys in cardiovascular disease, and in 1937 Herrmann and Aynesworth¹⁰ found it effective in asthma. I find it very useful for patients who no longer respond to epinephrine—who have become "epinephrine-fast." The dose often relieves the asthma for several hours and restores the normal reaction to epinephrine. The injection of one ampule intravenously on each of two or three evenings may bring the patient out of his status asthmaticus. The drug is given intravenously, the contents of an ampule containing 0.24 Gm. of aminophylline dissolved in 10 cc. of water being injected. The mode of action in asthma is not clear.

Theophylline alone is much less soluble, so that it cannot be used by vein, and by mouth it is not effective in asthma.

Ether in oil by rectum (30 cc., or 1 ounce, of ether to 60 cc., or 2 ounces, of olive oil) is less effective than aminophylline but it may be tried. It can be given on successive nights or even repeated on the same night without danger of depressing the respiratory center.

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7. Gay, L. N., in discussion before the Society for the Study of Asthma and Allied Conditions, New York, Dec. 11, 1937.

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9. Kotz, Jacob; Roth, G. B., and Ryon, W. A.: Idiosyncrasy to Paraldehyde, *J. A. M. A.* 110: 2145 (June 25) 1938.

10. Herrmann, George, and Aynesworth, M. B.: Successful Treatment of Persistent Extreme Dyspnea ("Status Asthmaticus"): Use of Theophylline Ethylene Diamine (Aminophylline U. S. P.) Intravenously, *J. Lab. & Clin. Med.* 23: 135 (Nov.) 1937.

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But perhaps the asthma continues in spite of treatment with one or all of these drugs. Oxygen may be necessary, and for asthma an oxygen tent should be particularly effective. This is partly because the relief that comes from breathing an atmosphere containing 40 or even 100 per cent oxygen may be life saving, and partly because an oxygen tent provides almost perfect "air conditioning." Extrinsic factors are eliminated automatically, and if the asthma is caused by dust the tent should be particularly effective. The new B. L. B. mask designed by Boothby, Lovelace and Bulbulian¹¹ is a more economical and efficient device for giving oxygen. Like the tent, it has the function of excluding all dust factors. The mask has a number of air inlets which can be opened or closed, and with them one can adjust concentration of oxygen in the intake quite nicely. Helium has been used by Barach,¹² who points out that, whereas a mixture of oxygen and air (nitrogen) has a high molecular weight, the mixture of the same amount of oxygen with helium has a much lower weight and density and so is better able to pass through small orifices like the partially occluded bronchi. If, therefore, helium is available, it should be used, for it may be helpful.

BACKGROUND OF ASTHMA

The fundamental background of asthma often requires drugs in its treatment. In the simple "textbook" cases of extrinsic asthma, in which the fundamental cause is an allergic or atopic hypersensitivity to a food or a dust, elimination is the important method of "fundamental" treatment and may be the only method required. Secondary infections occur and a chronic sinusitis or bronchitis makes a bad matter worse. Curiously the severity of the infection makes a difference, since a mild cold will always aggravate while a more severe and febrile disease will often lead to a rapid subsidence of the asthma.

Lesions of the nose and sinuses are so common in asthma that they may be regarded as a part of the process and not as a cause of it. This new regard explains why it is that the results of operation on the nose and sinuses are so often disappointing or at least have only a temporary good effect. Nevertheless the nasal lesions are often severe and require treatment and so sprays to the nose are used widely in the treatment of asthma and hay fever. They cause shrinkage of nasal mucous membranes and so promote drainage of the sinuses. Too much shrinkage, however, may inhibit the recovery of the membrane itself. The problem has been discussed in a previous article in the first series of these papers on "Local Medication of the Upper Respiratory Tract" by Heatly.¹³ The active ingredient in these sprays may be one of several drugs.

Ephedrine in the form of the alkaloid is miscible with oil, and a good spray is one containing from 1 to 2 per cent of ephedrine spray (nebula ephedrinae) of the National Formulary contains 1 per cent of ephedrine with methyl salicylate. The National Formulary also provides a compound ephedrine spray (nebula ephedrinae composita) containing 1 per cent ephedrine with camphor, menthol and oil of thyme. Watery sprays containing from 1 to 2 per cent of ephedrine salt (chloride or sulfate) in physiologic solution of sodium water, flavored if desired with peppermint or rose not so lasting. These sprays, both oily and watery, may be used in an atomizer or dropped into the nose at intervals of from two to twelve hours. Whereas the object of the spray is chiefly to shrink the nasal mucous membrane, it may have an effect on some nasobronchial reflex, but the physiology of such an action is not clear. Amphetamine produces a similar shrinkage of the nose. It is a volatile substance and a convenient amphetamine inhaler is available. It should be used cautiously, however, because the drug can raise blood pressure and produce marked restlessness in the very young as well as in older persons.

Neosynephrin hydrochloride is a synthetic derivative of phenylethylamine. Like ephedrine it is an active vasoconstrictor and is used locally in the nose, usually in watery solutions containing from 0.25 to 1 per cent of the drug.

Cocaine will shrink the nasal mucous membrane, but no better than other drugs which do not lead to a narcotic habit.

INTRINSIC ASTHMA

Intrinsic asthma comprises an important group of cases in which asthma begins later in life, at the age of 45 or after. The symptoms are often persistent, bearing no relation to changes in season or environment. Whatever the cause, it appears to be "something which the patient carries with him"; it is of "intrinsic" origin. I suspect that "allergy" in the ordinary sense has little to do with the cause of the trouble. Involvement of the sinuses is a part of the picture and not a cause of it. Emphysema is prone to develop, and the ultimate prognosis is not good. Treatment is difficult.

Potassium iodide and sodium iodide are the great standbys in the treatment of asthma, particularly asthma of the intrinsic type. Supposedly, their effect depends on a stimulation of the bronchial mucous glands to make them pour out a larger amount of watery secretion, which serves to dilute and increase the secretion resulting from chronic bronchial infections. Under the influence of potassium iodide, the sputum becomes thinner and can be raised with greater ease. The action of the cilia is increased. Coughing becomes easily productive and diminishes in severity. The dose of potassium iodide and the duration of its use are important for the reason that, whereas the proper amount will stimulate the bronchi, an excess of the drug will irritate them. Not infrequently I have been able to help my patient greatly by omitting the production of thin, stringy, bronchial mucus and thus making the cough worse instead of better. Potassium iodide, however, presents few objections except that it sometimes causes a disagreeable taste in the mouth after prolonged use, and it may cause a pustular eruption of the skin of the upper part of the trunk. Very rare is the patient who is really sensitive to iodide and who cannot take it in small amounts. The dose of the saturated solution (liquor potassii iodidi, N. F.) can be varied from 5 drops once a day to 25 drops four times a day. The average patient with intrinsic asthma or with a chronic bronchitis and emphysema is advised to begin with 10 drops of potassium iodide three times a day and then reduce the dose as the sputum becomes thinner. Occasionally the dose must be increased to 20 drops before any change is observed. Intelligent patients can be taught to regulate their own doses of potassium iodide, to take it when

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12. Barach, A. L.: The Use of Helium in the Treatment of Asthma and Obstructive Lesions in Larynx and Trachea, *Ann. Int. Med.* 9:739 (Dec.) 1935.
13. Heatly, C. A.: The Pharmacopeia and the Physician: Local Medication of the Upper Respiratory Tract, *J. A. M. A.* 107:1887 (Dec. 5) 1936.

cough becomes harassing and unproductive and then after a day or two to omit it again "until the next time," and so in this way to take it off and on indefinitely.

Whether the action of potassium iodide depends on the potassium or the iodide molecule is uncertain. The fact that sodium iodide is used in some clinics with equal enthusiasm suggests that the iodide is important. In 1938 Rusk and Kenamore¹⁴ described a new therapeutic approach to urticaria. They discussed the influence of potassium on the tactile excitability of the skin and stated that potassium salts have a pharmacologic action similar to that of epinephrine. It may be that the good effect of potassium iodide in asthma depends on the potassium ion rather than on the iodide. The substitution of potassium chloride for sodium chloride in the diet of asthmatic patients offers a new field for experimentation. Furthermore, the suggestion that potassium iodide may be injected intravenously may be more sensible than was first thought. Whereas the drug, when given by mouth, is absorbed so rapidly as to constitute a classic demonstration for the young student of pharmacology, it may well be that by intravenous injection a sufficiently larger quantity is introduced at one time to produce a more definite pharmacologic effect and perhaps to replace the potassium depleted from the tissue cells. For intravenous use the dose advised is one 10 cc. ampule containing 1 Gm., which may be repeated at intervals of from one to three days, if necessary.

Other expectorant drugs may be needed at times. They include ammonium chloride, terpin hydrate and squill. All these have been described in the first series of these papers by Brown.¹⁵

BRONCHOSCOPY

Bronchoscopy has been described by Weille,¹⁶ and others too, as "life saving" in asthma, since by it a mass of sticky exudate can be sucked out of the bronchi. Since iodized oil is often injected at the time of bronchoscopy to study the bronchi by x-rays, it has been observed by Balyeat,¹⁷ Anderson,¹⁸ Mandelbaum,¹⁹ Crip²⁰ and others that the iodized oil itself has a good effect on the bronchial infection, and so here is another therapeutic approach to a difficult problem. Iodized poppy seed oil has been instilled into the trachea in doses as large as 20 cc. without difficulty, and often with good results, after suitable local anesthetizing treatment of the pharynx and throat with cocaine and procaine. Multiple instillations are reported in many instances. The details of this treatment are important and the original references should be consulted for them.

OTHER METHODS OF TREATMENT

Many other methods of treatment have been suggested. Calcium has been used in various forms by mouth and by vein. Hydrochloric acid, peptone, histamine and vaccines have all been tried. Nonspecific therapy with vaccines and other substances injected

subcutaneously, or rarely intravenously, to produce a "protein shock" with fever is capable of doing good just as it is capable of doing harm. The fact suggests that the effect of many other treatments given under the skin or into the vein is merely "nonspecific" and dependent on a sort of shake-up—a gross disturbance of many physiologic relationships—but what they are or what nonspecific therapy really does is so far not clear. However, it is important to recognize that many treatments given under the skin and stated to be "specific" in that they are given for some preconceived purpose may not be so "specific" after all.

In the meantime, the patient suffers and must be cared for as a whole—not merely as a "case of asthma." Drugs and vitamins may be required for anemia, constipation, loss of appetite, "debility" and lack of proper nutrition. The man who undertakes to treat the patient must be a physician in every sense. He must rid his patient of all sources of irritation, physical and psychologic, and must do everything to put him or her into the best possible physical condition, for then the asthma will be much easier to deal with. Finally, the physician must be certain that the treatment which he advises will not give more trouble than the disease itself.

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HORMONES AND VITAMINS IN COSMETICS

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AND

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NEW YORK

(Concluded from page 1875,

THE RELATIONSHIP OF CERTAIN VITAMINS TO HORMONES

A close physiologic interrelationship is said to exist between certain hormones and vitamins. The various sex hormones are related to vitamin D in their chemical structure, since "cholesterol may be converted into the male sex hormone; the male sex hormone is readily convertible to estrone and this in turn to progesterone. Testosterone is very similar structurally to ergosterol and vitamin D."⁹⁷

Vitamin A has been found to exert an antagonistic action on thyroxine, as has been demonstrated by various experiments in animals and human beings.⁹⁸ These investigators have shown that thyrotoxicosis can be cured and prevented with a diet rich in vitamin A. Conversely, hypervitaminosis A could be prevented and cured by ingestion of desiccated thyroid. Since the original work of Von Euler and Klusmann,^{99a} it is generally believed that the growth factor which is contained in vitamin A is counteracted by thyroxine, while the accumulation of vitamin A in the liver is inhibited. Furthermore, in experiments with thyroidectomized goats, Fasold and Heidemann⁹⁹ have demonstrated that these animals were unable to transform carotene into vitamin A and that the milk from these animals was yellow instead of white.

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98. (a) Abelin, L.: Ueber den Antagonismus A-Vitamin: Thyroxin, *Vitaminforsch.* 4: 120, 1935. (b) Fasold, H., and Peters, H.: Ueber den Antagonismus zwischen Thyroxin u. Vitamin A, *Ztschr. f. exper. Med.* 92: 57, 1933. (c) Hoff, Hans: Vitaminstörungen des Zentralnervensystems und ihre Therapie, *Wien. med. Wchnschr.* 87: 605 (June 5) 1937. (d) Von Euler, H., and Klusmann, E.: Carotin and Thyroxin, *Ztschr. f. physiol. Chem.* 213: 21, 1932.

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The thyrotropic substance which is produced by the anterior lobe of the pituitary gland has been found to be closely related to vitamin A by Fellingner and Hochstaedt¹⁰⁰ in their experiments with guinea pigs. They found that the thyrotropic hormone had no effect on the thyroid gland when vitamin A was administered. Vitamin D has been found to be closely related to the parathyroid gland.⁹⁷ Each plays an important role in calcium-phosphorus metabolism; the same effects are produced when either one is given in large quantities. There is an increase in the calcium content of the blood and also an increased absorption of calcium through the intestinal mucosa. The hormone of the parathyroid gland stimulates the elimination of calcium and phosphoric acid at the expense of bone tissue,¹⁰¹ while an intake of vitamin D enhances the adsorption of calcium and phosphorus to bone by means of a better utilization of the calcium contained in food.^{98c} A series of experiments with dogs has demonstrated that after the removal of both thyroid and parathyroid glands these animals could be kept normal by means of substitutional therapy with vitamin D.¹⁰² The exact relationship of vitamin D to the thyroid gland must still be demonstrated. It is the opinion of certain investigators¹⁰³ that the thyroid protects the aorta and large vessels from the injurious actions of excessive vitamin D.

Vitamin C, which has been identified as ascorbic acid, has been found in the endocrine glands. The ascorbic acid contents have been quantitatively determined by Mendive and Deulofeu,¹⁰⁴ who found that the largest amounts were present in the pituitary gland, the corpus luteum and the adrenals. Murlin⁹⁷ has suggested that "quite possibly there will be found in the cortex a substance closely related to ascorbic acid in its action but not identical with it chemically. . . . One might suppose that the substance, which is not ascorbic acid, and which nevertheless has a vitamin C action, might be an intermediary substance in the process of ascorbic acid formation within the gland."

Various investigators have suggested the existence of an antagonistic relationship between vitamin C and the thyroid gland. After the administration of ascorbic acid to patients with exophthalmic goiter and to both normal and thyroidectomized dogs, Löhr¹⁰⁵ observed a reduction of the blood iodine to below normal limits. He also reports marked clinical improvement with no decrease in the basal metabolism of the patients. The suppression of an increased metabolism due to hyperthyroidism with the administration of vitamin C has been reported by Oehme.¹⁰⁶ There appears to be an intimate relationship between vitamin C and the ovary, as has been shown by Giedosz.¹⁰⁷ He found that either the ovarian follicles in scorbutic guinea pigs were completely lacking or, if these follicles were already present, atresia had occurred.

Only a brief attempt has been made here to review some of the many relationships between vitamins and hormones. Murlin,⁹⁷ in his masterly summary of the subject, states aptly that "vitamins might properly be regarded as exogenous hormones or hormones may be regarded as endogenous vitamins."

MISNOMERS

There have been offered to the public various so-called turtle-oil, glandular and hormone cosmetic preparations, which by their names suggest active properties which they may not possess. When the alleged active ingredients are inert, such claims are false.

Another subject for clarification is the use of the so-called vitamin F in various cosmetic preparations. "Vitamin F" is a concentrate of unsaturated fatty (linoleic and linolenic) acids found in linseed oil, and its classification as a vitamin has not been generally recognized. The efficacy claimed for this ingredient in cosmetics has not been proved.

ABSORPTION OF VITAMINS THROUGH THE SKIN

The percutaneous absorption of certain vitamins has been established by numerous investigators. Hume, Lucas and Smith² originally demonstrated that vitamin D could be absorbed from irradiated cholesterol through a small area of unbroken skin in sufficient amounts to supply the needs of the animal. By experiment they supported Hess's theory that the activation of hydrous wool fat by sunlight and its subsequent absorption through the skin is a possible source of vitamin D. Amrhein's¹⁰⁸ experiments in attempting to determine the conditions under which vitamin D could be absorbed through the skin proved that it can be absorbed percutaneously from both animal and mineral oil bases. Von Mallinckrodt-Haupt,¹⁰⁹ as well as Amrhein, found that the application of creams containing irradiated cholesterol caused repair to take place in rachitic rats. More recently, many investigators have corroborated the absorption of vitamin D through the skin.¹¹⁰

The evidence concerning the absorption of vitamin A through the intact human skin is rather meager. This may have been due to the difficulty in separating vitamin A from vitamin D and maintaining its stability. The recent isolation of vitamin A by the process of molecular distillation described by Hickman¹¹¹ facilitates further experimental investigation. Helmer and Jansen,¹¹² in their experiments on the absorption of vitamin A through the skin of rats, demonstrated that this vitamin, as contained in halibut liver oil and carotene, is readily absorbed, preventing severe symptoms of vitamin A deficiency in animals. These experiments were repeated by Eddy,¹¹⁰ who reported the relative merits of local application as compared with oral administration. He found that the growth effect of carotene emulsion applied topically was one third as

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efficient as the same amount by direct feeding. These investigators concluded that vitamin A can produce systemic effects by means of topical application.

Eddy and Howell^{112a} conducted additional tests to demonstrate vitamin A absorption through the unbroken skin. Six series of rats, each first depleted of vitamin A by the use of the U. S. P. basal diet, were employed for the tests. The vitamin product was rubbed into the skin over an area and allowed to remain for a specified number of minutes. They concluded that both carotene and vitamin A were absorbable by the intact rat skin in sufficient quantity to stimulate growth but that the carotene was better absorbed than vitamin A.

Regarding the percutaneous absorption of vitamin A in animals, Getz¹¹³ states: "I feel convinced that the absorption through the skin is comparable to the speed of absorption through the gastrointestinal tract."

The lipid solubility of vitamins A and D is considered the important factor in cutaneous absorption. However, Kasahara and Kawashima¹¹⁴ have reported that the water-soluble vitamin C can also be absorbed through the human skin, as evidenced by the increase of vitamin C in mother's milk following the application of a 30 per cent solution of ascorbic acid on the skin of the mammae.

SYSTEMIC EFFECTS FROM EXCESSIVE DOSES

There are numerous reports in the literature on the toxicity¹¹⁵ of vitamin D when administered orally or subcutaneously in excessive doses. The pathologic changes, however, depend on the preparation used, the method of administration, the sensitivity of the experimental animal and the susceptibility of the species. Schuebel¹¹⁶ reports that guinea pigs show the least amount of reaction to large doses of vitamin D, while cats and rats are the most sensitive. One large dose (10 mg. per kilogram) of irradiated ergosterol has caused death in cats and rabbits. A daily dose of 0.2 mg. of irradiated ergosterol is well tolerated by the white mouse, but 0.6 mg. leads to loss of weight, and 1 mg. was fatal in twenty days. There are many reports¹¹⁷ of deaths occurring in animals from D-hypervitaminosis. The toxic symptoms are anorexia, loss of weight, accelerated breathing, somnolence, diarrhea and increase in the calcium metabolism. The fur becomes stiff; characteristic calcium deposits are seen in the vascular walls, the heart muscles, the stomach wall, the lungs and the diaphragm. The spleen is frequently atrophic and the small intestine shows signs of hemorrhagic inflammation and ulceration.^{117b}

Important and striking symptoms of D-hypervitaminosis are the decalcification of the bones¹¹⁸ combined

with hypercalcemia¹¹⁹ and deposits of calcium in the internal organs and large vessels.¹²⁰

Kleinschmidt^{120a} believes that there is no danger of overdosage in the administration of vitamin A in man. In his animal experiments, however, he found that overdosage may be followed by manifestations resembling those of vitamin A deficiency and that very high overdosage of vitamin D may damage bones and vessels resembling other disturbances of calcium and phosphorus metabolism.

It is interesting to note that parenteral and intraperitoneal injections of irradiated ergosterol are more effective than feeding by mouth. The toxin apparently becomes weakened in the gastrointestinal tract.¹¹⁶

Okushima¹²¹ recently performed a very interesting set of experiments in which rabbits suffering from D-hypervitaminosis showed atrophic lesions in the nasal tissues resembling those seen in human cases of rhinitis atrophicans. Gordonoff and Zurukzoglu,¹¹ also Moncorps, Droller and Carter,¹¹ have demonstrated symptoms of vitamin D poisoning by rubbing an ointment containing this vitamin into the skin of normal rabbits.

Human D-hypervitaminosis occurs more frequently in children. Several deaths of children have been attributed to an overdosage of vitamin D. Bamberger and Spranger¹²² describe parenchymatous nephritis in a child whose death resulted from vigantol poisoning. Vigantol is a German brand of irradiated ergosterol. Park^{122a} states that "the idea that vitamin D in the form of irradiated ergosterol is an extremely toxic substance was derived from the use of the old German preparation vigantol, in the wake of which metastatic calcification was observed by a variety of investigators." Thatcher¹²³ reports the death of an 11 months old child following calcification of the kidneys from overdoses of cod liver oil and vitamin D. Gerlach¹²⁴ cites a child's death due to an overdose of vitamin D concentrate. Thomsen¹²⁵ reports a case in which calcification of the arteries occurred in a boy aged 8 years who had been treated with vitamin D for febrile inflammation of the joints. The bony structure, calcium content of the blood serum and blood cholesterol were found to be normal in this case. Some of the warning symptoms of the toxic condition are sudden anorexia and loss of weight, accompanied by severe diarrhea and nausea. Tenderness of the gums and teeth, pains in the muscles and joints, headaches, dizziness, paresthesia in the extremities, neuralgia of the trigeminal nerve and the

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like have been described as symptoms of D-hypervitaminosis in human beings.¹²⁶ Pfister¹⁰ reported cutaneous manifestations resulting from overdosage of vitamin D solutions given orally, describing these as a fine papular rash superimposed on an erythematous base resembling an early eczema. It usually occurred on the face. Two cases of severe skin eruptions in children who were accidentally given overdoses were reported. There was immediate cessation of the condition when administration of the vitamin was discontinued. Pfister explained:

These two cases, of course, are the extreme both in dosage and in the severity of the rash. My experience with skin conditions associated with vitamin overdosage has prompted me to be on the lookout for this manifestation, and I have encountered many facial rashes of varying degrees of severity which have cleared up after the vitamin solution was discontinued and the dosage later adjusted. I have reported these observations at a medical society meeting and have received several letters from physicians in the nearby towns who had noted several cases that cleared up after the vitamin solution had been stopped or the dosage adjusted.

An extensive review of the many experiments proving the toxic effects of vitamin D shows a great variability in the toxic threshold. In animals the approximate toxic dosage has been reported to be several thousand times the therapeutic dose. Rosenheim and Webster¹²⁷ reported that 10,000 times the minimum antirachitic dose was not lethal to rats. Collazo, Rubino and Varela¹²⁸ observed that rats died within six weeks when fed the McCollum high calcium rickets-producing diet 3143, plus 50,000 times overdosage of activated ergosterol. Bills and Wirick¹²⁹ in a study involving large numbers of rats from infancy to late maturity found that 1,000 times overdosage definitely perceptibly harmful, 4,000 times overdosage strongly toxic and 40,000 times overdosage strongly toxic to rats receiving a normal diet. Bills¹²⁵ explained that the margin of tolerance for man has not been accurately determined as for the rat, but it is probably not so great. Bills cites Crimm and Reed, who indicate that in man toxic effects begin to appear when approximately 600,000 international units, or 200 times the ordinary dose, of properly irradiated ergosterol is administered daily over a period of several weeks.

A-hypervitaminosis in animals has also been reported, causing emaciation, loss of weight, loss of hair, hypertrophy of the thyroid gland, fatty degeneration of the liver and hemorrhages in the lungs and intestine, finally leading to the death of the animal. Schuebel¹²⁶ reported that relatively small amounts of vitamin A (2,000-10,000 U. S. P. units) decreased the metabolism of normally fed guinea pigs and rats by from 9 to 16 per cent and that 20,000 units daily led to symptoms of hypervitaminosis after five days. Some of the symptoms described were spastic contraction of the extremities, diarrhea, hemorrhagic rhinitis, conjunctivitis, exophthalmos and the tendency to spontaneous fractures. Autopsy revealed necrotic glomerulonephritis with calcification, fatty infiltration of the liver and parenchyma-

tous damage of the spleen. Similar experiments were performed by Bommer¹³⁰ and by Ammon and Dirscherl,^{127c} which demonstrated the same pathologic changes in rats and mice.

Excessive administration of vitamin A concentrates to experimental animals has been reported to result in damage to bone, kidneys, skin and other soft tissue. However, no injury is likely by use of the usual liver oils in high dosage.^{130a}

Sherwood, Brend and Roper¹³¹ observed the effect of hypervitaminosis on the vaginal smears of rats, and their work was later enlarged on by Sherwood, Depp, Birge and Dotson,¹³² who demonstrated the effect of excessive administration of vitamin A on the estrous cycle. These investigators concluded that there was a disturbance in the estrous cycle as indicated by the study of the uteri and ovaries, as well as the vaginal smears, after vitamin A had been administered in excessive amounts orally and subcutaneously in the form of carotene. Bessey and Wolbach¹³³ reported that the estrous cycle may also be affected by vitamin A deficiency:

The changes in the repair of epithelium after vitamin A deficiency have their normal counterpart in changes in the vagina of rodents during the part of the estrous cycle in which the cornified vaginal epithelium returns to the mucous type.

Symptoms of A-hypervitaminosis have not as yet been observed in man. Ammon and Dirscherl^{127c} state that the possible danger of overdosage of vitamin A is diminished because of the lower degree of solubility of carotene in oil.

It has been proved by animal experiments that a simultaneous feeding of water-soluble and fat-soluble vitamins in extremely large doses could not produce hypervitaminosis. This led to the conclusion that there exists some sort of antagonism in which the effects of the fat-soluble vitamins may be counteracted by the water-soluble vitamins.¹²⁶

EFFECTS OF TOPICAL APPLICATION

The employment of vitamin D in the form of fish oil (cod liver oil) was discovered by the inhabitants of fishing communities. They rubbed cod liver oil on the skin of children in order to cure and prevent many types of local and generalized diseases. Interest in the topical application of cod liver oil on the skin has been aroused by numerous clinical experiments in the treatment of burns and wounds.¹³⁴ Third degree burns and infected wounds were successfully treated with applications of cod liver oil.

Massot^{134a} treated an x-ray ulcer of the hand by means of an ointment containing vitamins A and D. He reported that the pains disappeared after the first week of treatment and that the ulcer was healed after

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four weeks. In the discussion following Massot's report, Milian mentioned a similar result with "oil de Flétan."

Dainow^{134b} treated occupational dermatitis by means of parenteral injections of vitamins A and D and local application of vitamin D in some of his cases. He reported that he not only cured seventeen out of eighteen patients but also obtained a complete desensitization. He concludes that the tolerance of the skin for certain substances is related to its vitamin A and D contents.

De Grosz^{134c} advocates the local application of vitamin A in the form of oil or ointment in ophthalmic practice. "It is extremely useful in promoting epithelization of fresh corneal lesions." He recommends, however, that the treatment include the internal use of the same preparation for the best results. "The therapeutic use of the vitamin ointment is also indicated in caustic burns of the conjunctiva, chronic eczema, ulcers, inflammation of the lids, etc., and in acute photo-ophthalmia, herpes of the cornea, neurotrophic conditions, and gonorrheal ulcers. Overdosage, which may produce necrosis of epithelium, must be guarded against."

Lauber¹³⁵ observed in animal experiments that the local application of vitamin A produces no acceleration in the process of wound healing. He states that vitamin D produces a slight acceleration of the healing process when administered in low concentration and no effect when given in moderate doses and that concentrated doses of vitamin D retard the healing process. Löhr and Unger¹³⁶ also mention that a concentration of vitamins higher than that present in the natural state of cod liver oil retards rather than accelerates the healing of wounds.

Many other investigators have confirmed the work of Löhr, in the treatment of wounds, ulcers and boils with cod liver oil. Getz¹³⁴ in a recent preliminary report, observed a favorable healing action on tuberculous ulcers in guinea pigs, which indicated a specific effect of the vitamin fractions A and D contained in oil. In determining the efficacy of vitamins A and D, and also of the saponifiable and nonsaponifiable portions of oils containing these vitamins, he used 1,400 guinea pigs which had been inoculated with virulent tubercle bacilli producing tuberculous ulcers of the skin. In his first experiments, in which he used cod liver oil applied topically to the lesions and repeated six times, healing progressed at a much more rapid rate than in the controls. After chemical fractionation of the oil he found that the fatty acid fraction had the same effect as rancid oils; that is, irritation with no healing. He therefore concluded that "the active agent is concentrated in the nonsaponifiable residue since it causes healing more rapidly than the whole oil, often as early as the twelfth day of treatment, with remarkably little scar tissue." It was also found that cod liver oil in these experiments produced a systemic effect, since the treated animals showed less generalized tuberculosis than the controls.

In continuing the aforementioned experiments, Getz reported that the nonsaponifiable residue administered either topically or intramuscularly exerted a similar but more marked effect. Further fractionation into the sterols and the vitamin fraction proved that it was the

vitamin fraction which was the effective agent in healing. Since the vitamin fraction contains vitamins A and D, he continued his experiments in order to determine which vitamin was the more efficacious. By using three different fish liver oils in which the proportions of A and D varied, he showed that cod liver oil, which contains a greater percentage of vitamin D in proportion to vitamin A than the other oils, was the superior healing agent.

Löhr and Unger,¹³⁶ after some 500 experiments on guinea pigs, concluded that cod liver oil is effective in accelerating the healing of wounds. A favorable influence was exerted by vitamins A and D. They reported that the components of cod liver oil had a general as well as a local action, and they regarded the stimulating effects of the vitamins on the healing of wounds as a result of catalytic action in oxidizing cell processes. Local applications of vitamin C also facilitated the healing process.

Claussen,^{136a} discussing the local treatment of infections, burns and fresh wounds with application of oils containing cod liver oil or concentrates, doubts any specific action of vitamins contained in such preparations applied locally.

Lichtenstein^{136b} has recently completed a study on the bactericidal properties of cod liver oil. He concludes that there can be little doubt that the striking results obtained with cod liver oil dressings are, at least in part, due to the bactericidal power of the oil. Thus, dressings soaked with cod liver oil, or the application of a thick layer of cod liver oil ointment in the local treatment of infected wounds, burns, ulcers, osteomyelitis or amputation stumps, which have been advocated for about seven years, seem to be of value through the local growth-promoting and stimulating action of vitamins A and D, the absorption of these vitamins into the general circulation, and the observed detoxicating effect of cod liver oil on bacterial toxins.

The therapeutic systemic effect of vitamin D when applied topically is indubitable. The practicability of the cutaneous application as compared with oral administration, however, is questionable, except in cases in which ingestion is not possible, as the amount required for this form of therapy would necessitate many times the recognized oral dose of vitamin D.¹³⁷ This would not be a very economical method for treating a systemic disorder.

There is no conclusive experimental evidence proving local effects after local application of vitamins A and D to the unbroken skin, even in large quantities. Up to the present there has been no available evidence of any toxic effect in man after the topical application of vitamins contained in ointment.

VITAMINS A AND D IN VITRO

Several attempts have been made to demonstrate the effects of the fat-soluble vitamins on epithelial cells in tissue culture. In a recent report by Eddy,¹³⁸ mention is made of experiments performed by Dalldorf and Rowe in which tissue cultures of epithelium from chick embryo iris were grown in a medium of chicken plasma plus chick embryo extract, and in a medium depleted of vitamin A content plus chicken embryo extract. With the same technic, tests were also run in which

134b. Dainow, I.: *Traitement des dermites professionnelles par les vitamines A et D*, *Acta dermat.-venereol.* 20:191 (March) 1939.

134c. De Grosz, Stephen: *Local Use of Vitamin A Preparations in Ophthalmic Practice*, *Arch. Ophth.* 22:727 (Nov.) 1939.

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136. Löhr, W., and Unger, F.: *Tierexperimentelle Untersuchungen über die Wundheilung mit Lebertran und die Wirkung seiner Bestandteile*, *Arch. f. klin. Chir.* 189:405, 1937.

136a. Claussen, S. W.: *The Pharmacology and Therapeutics of Vitamin A*, in *The Vitamins*, Chicago, American Medical Association, 1939.

136b. Lichtenstein, M.: *Cod Liver Oil Dressings: Their Mode of Action*, *Lancet* 2:1023 (Nov.) 1939.

137. *Dermal Absorption of Vitamin D*, editorial, *J. A. M. A.* 105:36 (July) 1935.

138. Eddy, Walter: *Experiments on the Effect of Vitamins A and D When Brought into Actual Contact with Living Epithelial Cells*, unpublished data.

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the normal medium was reinforced with calciferol in an amount to supply 1,000 units of vitamin D per cubic centimeter of plasma. The results of these experiments showed that the addition of vitamin A will maintain the growth of epithelium which is depleted of both vitamins A and D, while vitamin D alone did not maintain this growth. They also demonstrated that vitamin A increases the growth of both epithelium and connective tissue; that the addition of vitamin D increases the growth of epithelium but only if A is present to a measurable amount. The growth rate of connective tissue is not influenced by vitamin D.

From these experiments in vitro it would be rather difficult to attempt an analogous appraisal of the effects of these vitamins in vivo. It has not been ascertained that the biologic condition of the surrounding plasma medium for the isolated epithelial animal cells is identical with that of human epithelial tissue in the living organism. Thus these observations can serve to describe the effect of the fat-soluble vitamins only on isolated tissues taken from living animals.

THE EFFECTS OF VITAMIN DEFICIENCIES ON THE SKIN

While no characteristic skin manifestations have been observed in vitamin D deficiency, many specific skin lesions have been ascribed directly to A-avitaminosis. A direct effect of vitamin D on the vitality and respiration of the skin has been described by Presnell,¹³⁹ who proved that vitamin D deficiency reduces the respiratory action of the skin in rats. He states that it cannot as yet be determined "whether this effect is a direct one, the vitamin acting on the calcium-phosphate metabolism of the skin, or an indirect one, through change in the blood calcium and phosphorus, or through the thyroid or other internal secretion."

The vitamin A deficiency principally affects the epithelial structures. The chief symptoms are lesions of the eye, retarded growth and pathologic changes in the epithelium of the respiratory, alimentary and genito-urinary tracts. The cutaneous lesions of vitamin A deficiency are usually described as a dryness of the skin due to an increase in keratinization, with keratotic papular lesions arising from the pilosebaceous follicles. Microscopic examination of the individual lesions reveals a distention of the follicular orifice with plugging of the latter by cornified epithelium. There is usually a hyperplasia of the epidermis together with atrophy of the appendages of the skin. The lesions are most frequently localized on the trunk and extremities.¹⁴⁰

Mathews¹⁴¹ comments on vitamin A deficiency as follows:

Among the earliest symptoms of a deficiency of vitamin A at present recognized in adult humans is a skin disease known as "phrynoderma" or "toad skin." The earliest symptoms are dryness of the skin followed by a papular eruption. It was cured by cod liver oil.

Scheer and Keil,¹⁴⁰ in a review of the cutaneous manifestations in vitamin deficiencies, have concluded

that the earliest lesion of vitamin C deficiency (scurvy) appears to be clinically indistinguishable from that observed in vitamin A deficiency. While both diseases attack the hair follicles, the fundamental processes appear to be different. The advanced follicular lesion of scurvy is more easily differentiated from the keratinization processes in A-avitaminosis, the vascular factor connected with vitamin C deficiency being the distinguishing characteristic, in contrast to the effect of vitamin A deficiency on the epithelium and the hair follicles. Scheer and Keil cite cases of follicular papules, hyperkeratoses and scurvy which were described in 1918 and 1919 by Nicolau and by Wiltshire.

That the symptoms of vitamin deficiency disappear when the necessary vitamins are restored orally is a known and accepted fact. Wolbach¹⁴² states that the potentialities of the cells are not lost and that chemical roles are suppressed but proliferative powers are not inhibited when the vitamin deficiency is restored to the animal by the necessary amount of vitamin A.

Vitamin A deficiency in experimental animals has been repaired by means of topical applications, as demonstrated by Helmer and Jansen.¹⁴³ They were able to prevent the severe symptoms of A-avitaminosis by rubbing vitamin A on the skins of rats. There is no experimental evidence available as yet proving any similar successful therapy with the local application of the vitamin in man. The local influence of this vitamin, when applied topically directly on the cutaneous lesions arising from vitamin A deficiency, has not as yet been demonstrated in either animals or human beings.

VITAMINS AND EXPERIMENTAL TUMORS

Many attempts have been made to associate the influence of vitamins with the development of experimental tumors in different animals. Barbiroli¹⁴⁴ performed several experiments with subcutaneous injections of "vigantol" (irradiated ergosterol) using the Ehrlich mouse carcinoma. In only one experiment was he able to demonstrate an effectual influence on tumor growth. Burrows and Mayneord¹⁴⁵ were able to produce spindle cell sarcomas in mice after the subcutaneous injection of cholesterol which had been irradiated with roentgen rays. Combining the results of their own investigations with those recorded by others, Ludwig and von Ries¹⁴⁶ concluded that both vitamins and hormones exert a definite effect on malignant neoplasms. They stated that deprivation of vitamin inhibits tumor growth. Geréb¹⁴⁷ also demonstrated that the development of cancer metastases and recurrences was facilitated by the excessive administration of vitamins A, B, C and D in the diet of white mice painted with tar. A vitamin-deficient intake had the opposite effect. Variations in the amount of the single vitamins produced no changes. The same results were obtained by Davidson,¹⁴⁷ who concluded after six years of study on 600 mice that a diet rich in vitamins A, B and E raises the tumor threshold in tar carcinoma while a lack of these vitamins lowers it.

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In a personal communication concerning the beneficial potentialities of vitamins when applied topically, E. M. Nelson,⁴ chief of the Vitamin Division, Food and Drug Administration, United States Department of Agriculture, in reply to our query writes:

Most of the studies with which we are familiar deal with preparations containing vitamins A and D. *There appear to be no favorable reports with respect to external application of the other vitamins.* It has been shown that the physiological effects produced by the ingestion of vitamin D can be produced by topical applications of this vitamin to the skin. There appears to be no evidence that vitamin D affects the skin or not *the immediate underlying tissues.* The evidence as to whether vitamin A can be absorbed through the unbroken skin or not is not clear. . . . We cannot conclude that it has been shown that the beneficial effects reported from the use of these oils are due to the presence of the vitamins. It remains to be demonstrated that the presence of vitamin A or D is even in part responsible for any beneficial effect observed.

Evaluating vitamins in cosmetics, Robertson¹⁵⁸ says:

After a careful review of the literature, we have been unable to find any well substantiated work which would support the contention that the presence of vitamins in cosmetics offers any particular advantage.

Borsook⁴ of the California Institute of Technology, in his discussion of vitamins in cosmetics, states that there is no scientific evidence in support of claims that vitamin D enhances the value of cosmetic preparations. He further says:

It is extremely improbable that the vitamin D intake is significantly raised by the amount which is absorbed through the skin from such preparations. There is further no reason to believe that vitamin D rubbed into the skin is any more effective than when taken by mouth. The practice of putting vitamin D into soap—the advertisements refer to it as “the sunshine vitamin”—is even less useful, because the soap does not remain on the face long enough for any of the vitamin to be absorbed.

A warning to the cosmetic industry in the *American Perfumer*⁶ of May 1938 reads: “Be careful what you claim for benefits from use of vitamin cream and use a minimum of 250 vitamin D units per ounce. . . .”

Redgrove⁴ gives the following opinion:

Many emphatic statements as to their cosmetic utility are to be found in trade and technical literature; but, apart from work demonstrating the utility of cod liver oil and allied products in facilitating the healing of wounds and burns, one seeks in vain for detailed reports of adequately controlled experiments.

The Toilet Goods Association⁵ in its bulletin of May 7, 1937, gave out the following information to members of the industry:

There seems no doubt that this substance can be absorbed through the skin, but there is no evidence that it is absorbed by the skin. . . . Vitamin D applied externally and whether produced by the ultraviolet irradiation of ergosterol or cholesterol, or from one of the fish liver oil concentrates, will in rachitic conditions improve the health of those suffering from vitamin D deficiency. In turn it is quite possible that this may improve the health of the skin as a part of the general health improvement of the patient. . . . However, the external application of this vitamin to adults suffering from a deficiency would not appear to be a satisfactory means of obtaining the required vitamin. . . . Vitamin A (carotene) was not mentioned because it has not yet been shown that it can be absorbed, nor that it has any effect on the skin unless it be taken internally. Carotene mixed with vitamin D in the form of irradiated ergosterol has been found helpful in quickening the healing of wounds with a remarkable lessening of scar formation; however, this of itself does not indicate any great cosmetic value.

McDonough⁴ says:

In food chemistry and also in physiological chemistry, tremendous advances have been made in the study of vitamins, but in dermatological chemistry there has not, to my knowledge, been any meritorious work done relative to the effect of vitamins upon the skin.

Finally, a reply from the American Medical Association to an inquiry from the Consumers' Research Bureau¹⁵⁹ brought forth the information that, “while it might be true that vitamin D might be absorbed from the cream, there was no scientific evidence that the absorption would have any cosmetic effect whatever on the skin.”

SUMMARY ON VITAMINS

1. It is possible for vitamins D, A and C to be absorbed through the skin.
2. Vitamin D applied to the skin in sufficient amounts has cured rickets in animals and human beings.
3. D-hypervitaminosis has frequently been observed in animals, causing death in some cases. Important and striking symptoms are decalcification of bones combined with hypercalcemia and deposits of calcium in internal organs and large vessels.
4. The ingestion of excessive amounts of vitamin D may produce parenchymatous nephritis, calcification of the kidneys and arteries, and skin eruptions in human beings. Vitamin D is apparently the only vitamin that may cause toxic symptoms in man when given orally, but no such effects have been reported following cutaneous applications.
5. Small amounts of vitamin D applied on wounds or burns may accelerate the healing process, although large doses retard it.
6. It has been reported that the topical application of vitamin A has corrected the symptoms of A-avitaminosis in animals.
7. In animals, toxic conditions resulting from the ingestion of large amounts of vitamin A have been reported. The symptoms were hemorrhagic neuritis, conjunctivitis, exophthalmos, tendency to spontaneous fractures, necrotic glomerulonephritis with calcification, fatty infiltration of the liver and parenchymatous damage to the spleen.
8. Excessive doses of vitamin A have been found to produce disturbances in the estrous cycle of rats.
9. There is no proof that the topical application of vitamins has any local effect on the intact human skin.
10. A low vitamin intake may retard the growth of tumors. The evidence that hypervitaminosis can accelerate tumor growth is inconclusive.
11. The topical application of vitamins on the skin for the treatment of vitamin deficiency is impractical and uneconomical. In certain cases in which absorption by ingestion is ineffective and injection is inadvisable, the percutaneous method may be tried.
12. The use of vitamins in creams, lotions and soaps has not been proved to have cosmetic value.

CONCLUSIONS

1. Cosmetics should not contain potent ingredients having constitutional effects. There is a potential danger to normal persons using cosmetics containing active therapeutic substances which, in the practice of medicine, are used to produce systemic changes.
2. Secrecy should be abolished regarding the ingredients of products offered to the public for cosmetic use. Complete knowledge of the chemistry and composition

159. M. C. Phillips (of Consumers' Research) Skin Deep, p. 117. Pub. Consumers' Research, Inc., Washington, New Jersey.

of such preparations should be readily available. It is well established that even small quantities of substances may cause an allergic response in certain individuals.

3. The widespread and uncontrolled use of therapeutic agents such as hormones and vitamins in cosmetics makes it necessary to determine their margin of safety and their efficacy if used in this manner.

4. Cosmetic preparations which function by hormone or vitamin action might more properly be classed as therapeutic agents.

745 Fifth Avenue.

Therapeutics

THE THERAPY OF THE COOK COUNTY HOSPITAL

EDITED BY BERNARD FANTUS, M.D.
CHICAGO

NOTE.—In their elaboration, these articles are submitted to the members of the attending staff of the Cook County Hospital by the director of therapeutics, Dr. Bernard Fantus. The views expressed by various members are incorporated in the final draft for publication. The articles will be continued from time to time in these columns. When completed, the series will be published in book form.—Ed.

THE THERAPY OF ACUTE PERIPHERAL CIRCULATION FAILURE: SYNCOPE, SHOCK AND COLLAPSE

IN COLLABORATION WITH DR. LINDON SEED

Acute circulatory failure may be of three etiologic types: It may be due to heart failure (q.v.), to hemorrhage (q.v.) or to failure of the peripheral circulation. To distinguish between these types carefully is of practical therapeutic importance because digitalis bodies are likely to be of value in only certain of the cardiogenic types and may be harmful in others.

In the type due to hemorrhage, the filling of the depleted vessels is of prime importance and, when this is due to loss of blood volume, prompt blood transfusion is the remedy. In this condition vasoconstrictor drugs may do harm.

Failure of the peripheral circulation includes a number of clinical syndromes characterized by inadequacy of circulating blood volume (absolute or relative) due to causes other than hemorrhage. In traumatic shock there is practically always loss of blood, but this is insufficient in degree to cause the clinical picture.

The insufficiency of circulating blood volume results in a great decrease in venous return flow and hence of cardiac output, a fall in arterial and capillary pressure, a small pulse pressure and an anemic anoxia of all the organs, most significantly of the brain. The reflexes are decreased or abolished. The skin is ashy gray and is covered with cold perspiration. This failure of the peripheral circulation may be of most complex causation and is perhaps best discussed under the traditional clinical concepts of syncope, shock and collapse, provided these terms are given definite meanings, which they at present by no means enjoy. We shall here distinguish between syncope, traumatic shock and collapse.

SYNCOPE

Syncope, neurocirculatory failure, fainting or swooning is a sudden and, unless quickly fatal, transient form of general systemic depression, characterized by an

unexpected, partial or complete suspension of consciousness and of locomotion and often of circulation and respiration.

Failure to maintain an adequate cerebral circulation is due to psychic or reflex (i.e. neural) influences affecting cardiac and vascular functions. This neurogenic collapse may be of several types: (1) vasovagal syncope, (2) vasal syncope, (3) cardiac syncope and (4) carotid sinus syncope.

All these types are characterized by their transient natures (unless the patient dies, which may happen) and by the absence of marked hemic or chemical changes.

1. *Vasovagal Syncope.*—This is the most common type. It is the ordinary "fainting spell" and is due to a combination of vasodilator and cardio-inhibitory actions which results in a greatly diminished return of blood to the heart. It occurs most commonly in predisposed persons suffering from vasomotor instability and a tendency to postural hypotension, which may be constitutional or acquired, as from prolonged bed rest, debilitating conditions such as fatigue, fasting, anemia or other disease. The precipitating factors, acting most especially by producing splanchnic vasodilatation, are prolonged standing in crowds, sudden getting up after prolonged recumbency, or the rapid withdrawal of large quantities of fluid (e.g. "tapping" of ascites). If under these conditions vagus stimulation occurs as the result of fright, pain or other profound emotion, the patient loses consciousness. Reflex stimulation from almost any instrumentation or from a blow on the solar plexus produces the same result. When the patient falls, the resultant low position of the head remedies the cerebral anoxemia and revival takes place, though the weakness continues for some time thereafter.

Diagnosis: The patient may fall in a faint without warning or the unconsciousness may be preceded by premonitory symptoms, such as epigastric or precordial distress, giddiness and light headedness, yawning, belching, nausea or abdominal or heart pain. The skin is ghastly pale, the veins are collapsed, the pulse is small or imperceptible, the pupils are dilated and the conjunctival reflex is absent. The heart sounds are slow and weak, the blood pressure is low, and the respiration is shallow and slow or deep and sighing. There may be clonic muscular movements. After a few seconds or minutes, sometimes right after involuntary urination or defecation, the pulse improves and consciousness returns, possibly with nausea and even vomiting, and usually with profuse perspiration. It is frequently followed by headache and weakness, which may last for some time. No other condition so nearly resembles death, and yet death occurs but rarely, as when, for one reason or another, sufficiently prompt recovery of an adequate cerebral or cardiac circulation is impossible, as when a patient collapses in a chair so that complete lowering of the head is prevented.

Prophylactic Therapy: Stability of the vasomotor system should be improved and anemia or any other systemic abnormality should be rectified. Ephedrine from 0.015 to 0.030 Gm. three times a day may be a preventive. An abdominal support may be of value. Instead of standing motionless for a long time the patient should shift the weight of the body from one leg to the other. After prolonged bed rest he should get up very slowly and should be watched especially during urination, defecation or emesis. Whenever premonitory symptoms appear he should lie down immediately. Fright or other emotion should not be permitted

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to aggravate the attack. During instrumentation of any kind the sitting posture should be avoided, especially by weak patients. Preoperative administration of sedatives and local anesthesia the patient should receive from 0.10 to 0.20 Gm. of soluble phenobarbital and 1 mg. of atropine subcutaneously. Local anesthesia should be applied not only subcutaneously but also intrapleurally.

Treatment: Since, in contradistinction to the normal, the circulation in syncope is affected by gravity, the head-down or "shock" position should promptly be assumed and the legs elevated. The clothing should be loosened. Reflex stimulation may be cautiously inhaling cold water to the face or by cautiously inhaling ammonia vapor, preferably from aromatic spirit of ammonia. Inhalation of oxygen with 10 per cent carbon dioxide may be helpful. Intravenous administration of 1 mg. of atropine sulfate or of 1 cc. of epinephrine in 1:10,000 solution may result in instantaneous recovery. In profound syncope subcutaneous injection is of no use because of poor absorption. Artificial respiration and heart and thoracic massage should be promptly resorted to if the condition seems desperate. The patient should be permitted to lie down until fully recovered. Against the consecutive headache one may use acetylsalicylic acid or another analgesic.

2. *Vasoconstrictor Syncope.*—This occurs from stimulation of the vasomotor center by chemical or mechanical agents. Most characteristic of this type is the syncope following administration of a local anesthetic in which the patient, usually sitting in the dentist's chair, collapses, may have convulsions and may even die. The therapy is in many respects similar to that of the vasovagal type. The administration of barbiturate is prophylactic and the slow intravenous injection of soluble phenobarbital (0.50 Gm.) may be life saving during an attack. Administration of epinephrine is contraindicated in this condition.

3. *Cardiac Syncope.*—The cardiac type of syncope occurs whenever the output from the heart is insufficient to maintain an adequate blood supply to the brain. It may be vagal syncope, which occurs typically in the Adams-Stokes syndrome: "syncope plus slow pulse" sometimes accompanied by convulsive seizures. This vagal syncope may be due to organic heart disease or be of reflex origin. Cardiac syncope also may occur in paroxysmal tachycardia as well as in angina pectoris and in congestive heart failure, i. e. whenever the heart output suddenly becomes inadequate to maintain sufficient cerebral circulatory activity. As these conditions are instances of "heart failure," their treatment will be discussed under this heading.

4. *Carotid Sinus Syncope.*—This type may be vagal or vagal. The function of the carotid sinus (a bulbous dilatation rich in sensory nerves located at the bifurcation of the internal carotid artery) is to prevent undue rise of arterial pressure and excessive increase of heart rate. Its stimulation results in cardio-inhibition and/or vasodilatation. Hypersensitiveness of the carotid sinus or organic lesions in its vicinity may result in spontaneous syncope, attacks of which may be induced by such cases by pressure on the carotid sinus, which is pathognomonic of such hypersensitiveness. There are three varieties of carotid sinus and syncope: one in which the pulse is markedly slowed, a second in which the blood pressure drops profoundly and a third in which convulsions are produced.

In addition to placing the patient in the horizontal position and loosening the clothing, particularly around the neck, the administration of epinephrine is indicated. Atropine is especially useful if the pulse is markedly slowed. For the prevention of attacks, atropine sulfate in 0.5 mg. doses two or three times a day may be beneficial or, if this fails, ephedrine in from 15 to 30 mg. doses may sufficiently increase the irritability of the myocardium to prevent the slowing of the heart rate. In otherwise unmanageable cases, surgical section of the nerve or denervation of the sinus is justified.

TRAUMATIC SHOCK

Traumatic shock, as it is seen in hospitals, should be defined as a depression of the vital processes consequent on severe physical injury and due to a great insufficiency in volume of circulating blood, which may be partly due to actual loss of blood to the exterior into some of the body cavities or into the soft tissues and partly or entirely due to "plasmolysis," i. e. exudation of blood plasma into the injured area. This is what is commonly called "secondary shock." What is called "primary shock" is syncope, being characterized by suddenness of onset and a tendency to recovery (reaction), especially in the head-low posture. Shock may insensibly pass into vasodilatation collapse (q. v.).

Diagnosis.—From a clinical point of view, the most important definite factor in the diagnosis and treatment of traumatic shock is the low blood pressure. The diagnosis of shock cannot be made without a low blood pressure, and the degree of drop in the blood pressure roughly corresponds to the degree of shock. Not only does the low blood pressure often precede the other clinical manifestations but its drop determines also the quantity of fluids to be administered. One continues treatment governed largely by the effect of the treatment on the blood pressure. From a practical point of view, for instance, one could say that if the systolic blood pressure is under 90 the patient is unlikely to survive a major operation.

The Stages of Shock.—The so-called primary shock is essentially syncope. It is more severe in adults than in children and in nervous than in phlegmatic persons, and is also severe in persons crippled by organic disease; it is more prone to occur under the influence of hunger, fatigue, exposure, fear and terror. Owing to the importance of the psychic element, the degree of shock may be proportionate even to the patient's idea of the gravity of his condition, whether the actual damage is really great or the patient merely thinks it so. The more sensitive the tissue damaged the more nerves are involved in the injury, or the larger the nerve injured the greater is the degree of shock. This is the reflex (syncopal) factor.

The "reaction" stage usually sets in within a few hours if the condition is not speedily fatal. The reaction is possibly due to a number of influences: the waning of the syncopal factor, or the vasopressor action of accumulating carbon dioxide and of adrenal secretion. Marked delay in the onset of the reaction should cause one to look for complicating hemorrhage (q. v.), hemolysis (discussed later), or acidosis concentration collapse (discussed later), or acidosis (q. v.). The reaction sets in with the return of color to the face, the pulse becomes slower and stronger and the temperature rises. Sometimes above normal. Vomiting may usher in the reaction. If vomiting occurs during the first stage, it is a bad omen.

The stage of "secondary shock" may supervene on the reaction or on alternate periods of reaction and

depression. The secondary shock is usually due to hemorrhage and/or exudation. In either case the reduction in the volume of circulating fluid results in stimulation of the vasomotor center, so as to maintain a degree of circulatory activity compatible with life. Under these circumstances the vasomotor center keeps, by splanchnic vasoconstriction, the blood pressure higher than it would otherwise be. If in spite of this the blood volume continues to fall, the condition passes insensibly into "vasodilatation" collapse from failure of the vasomotor center due to inadequate blood supply, and now the splanchnic blood vessels dilate. When this occurs, and especially when in addition these vessels have become leaky as a result of prolonged impairment of their nutrition, the condition is fatal, responding to no therapeutic efforts. The practical lessons to be drawn from these considerations are, first, that for a patient in shock, as also for the patient in hemorrhage, general or subarachnoid anesthesia is extremely dangerous because of their vasodilator tendencies. Secondly, promptness is an essential factor to success in treatment. If the correct treatment is not applied at the right time, no amount or kind of treatment will do any good.

The symptoms of shock may be described as follows:

The patient, after an automobile accident, is brought into the hospital on a stretcher. He is moaning gently, seems restless and has little interest in his surroundings. His respirations are a bit hurried; his forehead is pallid, slightly wrinkled and covered with fine drops of cold sweat. His eyes are a shiny white; the nose is pinched and has a bluish tinge. The lips are purplish gray. There is written on his face not only the anguish of pain but the fear of impending dissolution. His hands lie powerless at his side; the finger nails are the color of an overcast sky. The hand is covered with a cold and clammy dew. The radial pulse is merely a flicker in the wrist and it can be counted only with difficulty at 120 to 130 to the minute. When the blood pressure is taken the first beats come through at 85 mm. and fade out at 70 mm. The thermometer inserted in the rectum registers 96 F. When he is moved from the stretcher into bed, the bones of the pelvis can be felt to rasp one against the other. He does not cry aloud but moans softly. Even if no treatment is instituted, in an hour or two he seems improved and asks concerning his friends who were in the wreck. Merciful nature has stopped all sensation of pain, but the flicker that was in his wrist is gone. When the blood pressure is taken one can hear at 60 mm. beating as of the hoof beats of a horse as his rider drives him far across the prairie and into the horizon. Soon, and rather quietly, he falls asleep, his respirations become irregular, now fast, now slow and finally cease.

Prophylactic Therapy.—Operation shock, like sepsis, is more easily prevented than treated once it has occurred. It is the debilitated patient who is the most likely to have operation shock. A debilitated patient is one who has a loss of strength or loss of weight or anemia or all three. These are the three most important criteria of tendency to shock.

1. Proper preparation of the patient tends to secure optimal resistance and reserve. Thorough preoperative examination of the patient with particular reference to the kidneys and elimination (routine examination should include the amount of voided urine and the amount of chloride in twenty-four hours). Excepting in an emergency, no patient should be sent to the operating room who has not passed at least 1,000 cc. of urine in the preceding twenty-four hours and whose urine is not free from sugar and diacetic acid and does not contain at least 0.3 per cent sodium chloride. Whenever a patient cannot thus be prepared for operation

this fact should be prominently noted, as such patients require special after-care. Prolonged starvation before operation should be avoided and sleeplessness prevented the night before operation by administration of a suitable hypnotic, if required. The night must not be made hideous by preparation for the operation if it can possibly be avoided. Blood should be examined for alkali reserve and sugar. If the operation cannot be postponed, in the presence of acidosis, the operation should be preceded by intravenous injection of dextrose solution (see also Acidosis). In the presence of severe anemia, it is imperative to give a preoperative blood transfusion. Purgation before operation is no longer resorted to. If required, an evacuant enema is employed.

2. Expert anesthesia minimizes the causative reflex factor. In some cases morphine 8 to 10 mg. and scopolamine hydrobromide 0.5 mg. hypodermically twenty minutes before operation are useful to combat restlessness and lessen the amount of anesthetic required. The duration of the anesthesia should be as short as possible. In the presence of shock a local anesthetic is best. Next comes ethylene, and ether comes last in order. During the period of anesthesia it is imperative that an accurate check be made on the blood pressure and pulse rate.

3. Tissue trauma increases shock by increasing the amount of "exudation": hence tissue trauma must be minimized; so must nerve injury. Operations should be performed as expeditiously as possible and handling, exposure or injury of the tissues reduced to a minimum. Careful prevention of loss of blood is also essential.

4. Psychic shock should be prevented by reassuring, kindly and humane treatment of the patient, by avoiding delay in operation as well as by not permitting anything to occur that may frighten him.

5. Bodily warmth should be maintained, the exposure being avoided, and there should be no delay in returning the patient to bed from the operating room.

6. A patient in shock with a systolic blood pressure under 90 should never be operated on unless a continuous blood transfusion is being given during the operation. A continuous transfusion of blood during operation may allow one to do an imperative operation safely on a patient in severe shock.

Treatment.—1. Absolute rest should be secured and pain and distress relieved. Morphine hypodermically (0.02 Gm.) or, if injection is impossible, sublingually (crushed hypodermic tablet under the tip of the tongue) to cut off the psychic influences that aggravate shock is considered the single most important medicine for the patient in shock. Alcohol (whisky or brandy) acts similarly and may be given by mouth or, if swallowing is impossible, diluted with hot water by rectum, provided it is certain that there is no perforation of an abdominal organ. Fear and despair should be allayed by a kindly and reassuring manner. A single tactless remark may turn the tide against the patient. The inflow of sensory stimuli from the site of the injury should be minimized by splinting or otherwise preventing damage to the nerves. Rough and prolonged transportation and delayed treatment of the wounded, as in battle, greatly aggravate shock. Until reaction has set in, manipulation of the injured part should be restricted to that demanded for the checking of hemorrhage and the minimizing of pain and distress.

2. Body heat must be maintained. The tendency to subnormal temperature causes a vicious circle, because

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there is no greater depressant to vital function than a subnormal temperature. In its presence, stimulants fail to act. Heat may be applied by an electric light bath; hot blankets, hot bricks or bottles filled with hot water; but great care should be exercised against burning the patient, for when the circulation is poor tissue is easily damaged by heat. If the temperature is quite low, the quickest way of restoring it is by a hot bath or a hot wet pack, for dry heat penetrates but slowly and poorly. One may pour hot water (avoid scalding!) over the clothing of a person to be resuscitated after drowning. Exposure to cold and wet greatly aggravates subnormal temperature and shock. Hot drinks, hot enemata and hot infusions are helpful. Diathermy is advocated.

3. Blood circulation should be maintained in the vital parts of the body by having the head on a level with the body or lower than the feet, provided this does not cause cyanosis and there is no head injury. In any severe case autotransfusion (bandaging limbs after raising each in turn for a few minutes) may be of value. If hemorrhage is present, it must be arrested as soon as possible and the loss of blood made good by a blood transfusion as promptly and as thoroughly as the occasion permits.

Lost body fluid should be restored. In all cases of severe shock, the pulse and blood pressure should be observed at frequent intervals (most reliable indicator of severity of shock): also a complete red blood count should be made, followed by repeated red blood counts and hemoglobin estimations. Whenever blood in considerable amount has been lost and the blood count is low, blood transfusion is the supreme and may be life-saving remedy. Even if no blood has been lost it is still the best fluid, because it stays in the leaky vessels. If human blood cannot be procured, acacia solution (6 per cent acacia in 0.7 per cent salt solution) is probably the best substitute, as this does not leave the vessels as quickly as salt solution. Dextrose solution is somewhat superior to physiologic solution of sodium chloride, as dextrose remains in the blood vessels somewhat longer than does salt, and previous deprivation of nourishment or the presence of acidosis is relieved by the addition of the dextrose. As this sugar must be used in quantity to do any good, the percentage to be used depends on the amount of fluid that can safely be infused under the existing conditions of heart weakness. If the heart is very weak, 25 cc. of 50 per cent dextrose solution may be best. If 1,000 cc. can safely be injected, a 5 or 10 per cent solution will suffice. Fluids used in shock should be given as hot as can be borne (about 110 F. intravenously, not subcutaneously). These fluids given intravenously must be administered very slowly drop by drop and stopped as soon as some improvement has been secured, for giving too much fluid or giving it too rapidly may seriously embarrass the right side of the heart.

Unfortunately all these measures are merely symptomatic, as they do not relieve the underlying cause—the loss of peripheral vascular tone. In profound shock the administration of fluid by hypodermoclysis is relatively futile, because in this condition fluid passes out of the capillaries and, in the presence of shock severe enough to be fatal, fluid thus given is not likely to be absorbed. By mouth only small quantities of water are admissible, otherwise attempts to quench the shocked patient's thirst leads to vomiting. Water absorption from the stomach is nil.

4. Circulatory stimulants are important. The only drug that may be of any value in the final (vasodilata-

tion) stage of collapse is epinephrine; but unfortunately its effect is so transient—lasting but a few minutes—that it is of value only as a temporary measure to give time for the administration of more valuable measures, such as transfusion. It must be administered intravenously. It is useless when given by mouth or hypodermically. It is best given very slowly in 1 cc. doses of the 1:10,000 dilution. During phlebotomy a 1 cc. dose of this dilution may be added from time to time by puncturing the previously sterilized rubber tubing of the infusion apparatus. Epinephrine should be infused very slowly, at just the rate to maintain blood pressure at a safe level, for the effect of epinephrine is just as fleeting as it is prompt. In extreme emergency, intra-auricular injection of epinephrine 1 to 5 cc. of 1:1,000 solution may possibly be life saving.

In the presence of distention of the bowel, pitressin (1 cc.) may be a valuable addition. It must be given intramuscularly, as no drug is likely to be of any value when administered hypodermically in cases of severe shock, for it will probably not be absorbed until the emergency is over. If facilities for infusion of epinephrine are not at hand, intramuscular injection of epinephrine solution (1 cc. of 1:1,000) may be employed, with the hope that the inhalation or oral administration of a reflex stimulant such as aromatic spirit of ammonia or brandy, diluted with hot water, may give a sufficient stimulus to the circulation to permit absorption of a other stimulant. The stimulation must not be overdone for fear of starting up hemorrhage. Strong liquor should not be poured down a shocked person's throat—he may not be able to swallow properly and aspirate it into the larynx, which may aggravate the shock. Strychnine or other stimulants that increase reflex activity should be taboo in shock, for shock is increased by reflex excitation.

COLLAPSE

Collapse is a condition of extreme prostration due to (1) absolute or (2) relative insufficiency of blood volume without actual loss of blood. It is of slower onset than syncope or shock and of indefinite duration.

Forms.—1. Collapse due to absolute insufficiency of circulating fluid occurs from (a) exsiccosis, i. e. insufficient intake of fluid, (b) hypochloridemia, excessive loss of salt and fluid (vomiting, sweating) or (c) "plasmolysis," i. e. excessive loss of blood colloid due to leakage of blood vessels. The term "serous inflammation" has been proposed for this condition of damage to the vascular endothelium from tissue destruction products, whether caused by a burn, freezing, corrosion or trauma, resulting in a leakage of plasma through the capillaries. As none of the other evidences of inflammation (excepting this leakage of plasma endothelium) are in evidence, the term "plasmolysis" is proposed as possibly more appropriate. This condition probably due to tissue disintegration products, is liable to set in whenever circulation is seriously interfered with in any vascular territory.

2. Relative insufficiency of circulating fluid may occur from:

- Depression of the vasomotor center, from poisoning by drugs, most especially those of the aromatic series, e. g. phenol and the antipyretics.
- Degenerative changes in vascular tissue due to toxins of infectious diseases. This condition is frequently spoken of as "heart failure," but actually the vasodilatation is in the center of the picture. The

1. Serböse entzündung, Eppinger and Pepper.

symptom complex of true heart failure (q. v.) includes dyspnea, more marked cyanosis and a tendency to edema, pulmonary or systemic.

(c) Collapse, which may be due to functional impairment or degeneration of endocrine glands, such as the adrenal or pituitary.

3. Combinations of these two forms of collapse (1 and 2) occurring in various ways and degrees may make the clinical picture exceedingly complex.

Diagnosis.—This skin is pale and cold (even if there is fever) and clammy, and it may be grayish (owing to cyanosis, especially of the lips, nose, fingers and toes); the face appears pinched, and the nose prominent. The pulse is rapid and feeble, the blood pressure and pulse pressure are low. There is great diminution or even cessation of urinary secretion. The temperature may be subnormal or rise very high in febrile collapse. There is muscular weakness and relaxation. Mental depression and apathy are present, but consciousness is preserved until near the end. When delirium and coma set in, death is usually near.

Prophylactic Therapy.—This is of greatest importance, as treatment is often futile once advanced collapse is present. Therefore every possible effort must be made to discover early the tendency to collapse and to treat correctly the underlying condition, whether this is infection, intoxication, systemic hypohydration, chloride deficiency or plasmolysis.

Treatment.—1. Absolute rest is indicated with the head low to keep the blood in the vital centers. "Auto-transfusion" by elevation and centripetal bandaging of the limbs and compression of the abdomen may be tried. Should cyanosis set in, however, this may be held as evidence that these maneuvers are being overdone—that the heart is being embarrassed by them.

2. Hot stimulating drinks (coffee or tea), if the patient can swallow, should be given in small quantities frequently repeated. No food requiring digestion should be administered until the crisis has passed; nor should large quantities of fluid be given by mouth.

3. If the body temperature is subnormal, external heat is the single most important stimulant. While the hot bath is most efficient, an electric light bath under "cradled" bed clothes is next best, if the patient should not be subjected to the strain of the bath. The use of hot water bags or bottles carries with it the danger of inducing burns if they happen to be placed too close to the skin; and burns occur in the collapsed patient much more readily than in one whose circulation is more adequate. In febrile collapse (internal temperature high, skin pale), bringing the blood to the skin by hot sponging or a mustard bath or mustard pack followed by a brief cool procedure, to "fix" the blood in the skin, is the method of choice.

4. Fluid of some sort must be administered, and usually parenterally, as absorption from the gastrointestinal tract is very poor.

(a) If the condition is serious, blood transfusion should be employed and repeated as required. This is much superior to infusion of acacia solution.

(b) If there is exsiccosis (merely water deficiency) 2.5 per cent dextrose in half strength (0.45 per cent) normal salt solution is perhaps the best infusion fluid, given hot (110 F.): if the temperature is subnormal. If the heart is feeble, only small quantities at a time are admissible, preferably given by intravenous drip. If required, it may be given continuously (preferably by tandem flask) and 3,000 cc. introduced in the twenty-four hours. In hypohydration collapse the administra-

tion of colloid fluid is inadvisable, as it tends to prevent the fluid from reaching the tissues, where it is needed.

(c) In hypochloridemia collapse, phleboclysis of hypertonic (10 per cent) sodium chloride solution (10 to 20 cc.) should precede other therapy.

(d) Hypodermoclysis of 5 per cent dextrose may be considered in less serious conditions. This must not be given at much above 100 F. for fear of producing sloughs.

(e) Rectal injection of hot fluid (120 F.), preferably hot black coffee, is to be considered in mild collapse.

5. The abnormal chemistry of the tissue fluids should be corrected. Disturbance of the acid-base balance of the system, either acidosis (q. v.) or alkalosis (q. v.), should be taken care of in connection with the introduction of fluids, as indicated.

6. Correction of disturbed circulatory mechanics is usually spoken of as "stimulation." An estimate should be made of the relative participation of the heart, the blood vessels, the endocrines and the nervous system in the existing depression of the circulation:

(a) Epinephrine (from 0.5 to 0.75 cc. of 1:1,000 solution) administered extremely slowly, preferably much diluted, in intravenous drip may be of telling effect, especially if there is peripheral vasoparesis, particularly if this is due to endocrine deficiency. Epinephrine is contraindicated if there is a tendency to pulmonary edema.

(b) So-called diffusible stimulants, aromatic spirit of ammonia, or whisky or brandy, may be given by mouth or in hot black coffee by rectum. The effect of these should be carefully noted; they should not be repeated unless they produce at least temporary improvement.

(c) Inhalation of amyl nitrite (0.30 cc.) may bring a flush to the face and improve conditions if spasm of the cerebral capillaries is present; but, in general, nitrite must be avoided whenever there is great diminution in the volume of circulating fluid.

(d) Atropine sulfate (1 mg.) by hypodermic injection may be especially useful in collapse with "leaky" skin. When it is used, improvement in the circulation must be judged by the increased vascularity of the skin rather than by slowing of the pulse, as atropine sulfate may accelerate the heart beat while improving the circulatory condition.

(e) Strychnine sulfate, in a great emergency, possibly in doses as high as 3 mg. given intramuscularly, is too well established clinically as an available stimulant to be discarded on the basis of negative results in experiments on healthy animals. It may possibly act indirectly by stimulating adrenal secretion.

(f) Caffeine with sodium benzoate (0.5 Gm. ampule) given intramuscularly may be of value, especially if there is cerebral depression.

7. Camphor (in oil) 1 cc. intramuscularly and repeated at intervals once or twice a day was formerly a popular stimulant. Metrazol (1 to 3 cc.), which is similar but more prompt in action, has largely replaced it.

8. Digitalis bodies, preferably strophanthin (if digitalis has not been given for days previously) in doses of from 0.25 to 0.5 mg. in 10 per cent dextrose solution intravenously should be used if there are indications of myocardial failure. If it improves conditions, this should be followed by administration of digitalis by mouth.

The redundancy of the remedies offered does not mean wealth but rather poverty in reliable measures: it

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does not mean knowledge but ignorance of specific remedies. These various agents should not be piled on indiscriminately. The effect of any one of them should be carefully noted before repetition of the dose, for they may harm as well as help. Plying the dying with "stimulants" is nothing less than inhumane.

9. The respiratory conditions should be improved. If cyanosis supervenes, oxygen inhalation, possibly with 5 per cent carbon dioxide to act as a respiratory stimulant, may be employed; but it should not be used as routine before death because it adds to the discomforts of the dying and, besides, it would be a waste of expensive gas. To be of value it must be used early; it should be remembered that collapsed patients become gray from cyanosis rather than blue. Artificial respiration may be resorted to in an acute emergency if breathing becomes enfeebled or irregular.

10. When a patient who has been in collapse rallies he is in need of prolonged rest in bed and careful "building up" treatment, as the damage to the circulation is likely to be recovered from very gradually.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

THE BOARD OF TRUSTEES REQUESTED THE COUNCIL ON PHARMACY AND CHEMISTRY TO MAKE A STUDY OF THE PROMISCUOUS USE OF BARBITURATES, PARTICULARLY WITH REFERENCE TO THE DANGEROUS USE OF THESE PRODUCTS BY THE PUBLIC. THE REPORT HAS BEEN DRAWN UP IN TWO SECTIONS. THE FIRST SECTION, ENTITLED "A STUDY OF THE PROMISCUOUS USE OF THE BARBITURATES: THEIR USE IN SUICIDES," WAS PUBLISHED IN THE JOURNAL, APRIL 8, 1939, P. 1340. THE COUNCIL HAS CONSIDERED THE SECOND REPORT, ENTITLED "THE PROMISCUOUS USE OF THE BARBITURATES: II. ANALYSIS OF HOSPITAL DATA," AND AUTHORIZED ITS PUBLICATION, AT THE SAME TIME AGAIN EXPRESSING APPRECIATION TO DR. HAMBOURGER FOR HIS EXCELLENT COOPERATION.

PAUL NICHOLAS LEECH, Secretary.

THE PROMISCUOUS USE OF THE BARBITURATES

II. ANALYSIS OF HOSPITAL DATA W. E. HAMBOURGER, PH.D., M.D. CLEVELAND

In a previous communication¹ a survey was made of coroners' records of suicidal deaths due to barbiturates. The present report deals with the involvement of these drugs in cases of poisoning received at hospitals during the decade 1928-1937. The data were obtained from fifteen hospitals in reply to a questionnaire. Additional data were added from the medical literature. The hospitals which volunteered the requested information and their officials are as follows:

- Baltimore: City Hospital, P. J. McMillin, superintendent; Johns Hopkins Hospital, E. L. Crosby, M.D., statistician and supervisor of records.
- Boston: City Hospital, C. H. Pelton, M.D., assistant superintendent; Peter Bent Brigham Hospital, E. C. Cutler, M.D., surgeon-in-chief.
- Chicago: Presbyterian Hospital, E. E. Irons, M.D.; Michael Reese Hospital, Record Room; University Clinics, N. Gorgas, assistant to the director.

¹From the Department of Pharmacology, Western Reserve University School of Medicine.
An article on the legal aspects of the subject of the promiscuous use of barbiturates, prepared by the Bureau of Legal Medicine of the American Medical Association, appears in this issue, page 2029.
J. Hambourger, W. E.: A Study of the Promiscuous Use of the Barbiturates: Their Use in Suicides, J. A. M. A. 112:1340 (April 8) 1939.

- Cleveland: Cleveland City Hospital, G. P. Bugbee, superintendent; University Hospitals, J. M. Hayman Jr., M.D.
- Dallas, Texas: Baylor University Hospital, G. M. Hilliard, M.D., acting medical director.
- New York: Presbyterian Hospital, W. H. McCurdie, assistant superintendent.
- St. Louis: St. Mary's Hospital, Sister Mary Servatia, S.S.M., medical record librarian.
- Washington, D. C.: Walter Reed General Hospital, J. L. Murchison, M.D., Captain, Medical Corps, Adjutant.

The following two hospitals have been omitted from this summary because they did not report any cases of intoxication by barbiturates:

- Alms House Hospital, Newark, N. J., F. W. Becker, M.D.
- Quincy City Hospital, Quincy, Mass., J. P. Leone, M.D.

It will be noted that the thirteen hospitals whose data are analyzed in the present study are located in larger cities in the New England, Atlantic, Middle Western and Southwestern areas. Hospitals in other parts of the country failed to supply information. Although this distribution does not represent a typical cross section of American life, nevertheless the statistics available for study represent more than one and one fourth million hospital admissions for the decade 1928-1937. A few of the hospitals did not furnish information on the total number of admissions for all causes and for all types of poisoning cases. This made it necessary when determining percentage values to omit their data from the calculations.

The data will be discussed under the headings of (1) acute intoxication, (2) hypersusceptibility, (3) addiction and (4) chronic poisoning.

ACUTE INTOXICATION

The thirteen hospitals which supplied the data (table 1) reported a total of 643 cases of poisoning by barbiturates during the decade 1928-1937. Of these, forty-seven cases, or 7.3 per cent, were fatal. During the decade, ten of the hospitals received 555 cases of barbiturate poisoning among 3,936 cases of poisoning by all drugs (except carbon monoxide and alcohol). Barbiturates, therefore, represented about one seventh, or 14.1 per cent, of all the poisonings. Twelve of the hospitals had a total of 1,254,465 admissions for all causes during this interval, of which barbiturates made 0.053 per cent, or about one case in every 1,900.

As in the previous communication, which analyzed successful suicides,¹ the incidence of involvement of barbiturates in the cases of poisoning received by the hospitals varied widely in different localities. The range is from 5 per cent at Baylor University and New York Presbyterian hospitals to 20 per cent at Michael Reese Hospital in Chicago. But unlike the distribution of suicides, the ratio of barbiturate poisoning to all drug poisonings is quite variable, even within a given locality. For instance, in contrast to Michael Reese Hospital in Chicago, where the incidence was 20 per cent, it was only 9 per cent at the University of Chicago Clinics. In Baltimore it was 18.5 per cent at the Johns Hopkins Hospital (1936 and 1937 only) while it was 2.6 per cent at the City Hospital (1935-1937 only). Presumably the reason for such variations lies in the different clienteles of the institutions, the relative percentage of emergency cases, surgical cases, and so on.

Somewhat better correlation for barbiturate poisoning are observed when admissions for all causes. These values are given in table 1 in the order of descending ratio.

On this basis the frequency of poisoning by barbiturates is highest in the New England area, intermediate in the Middle West and lowest in New York City and the Southern areas.

The relative occurrence of accidental barbiturate poisoning as compared with suicidal poisoning also varies considerably in the reports from the different hospitals. Four classifications could be recognized: (1) definitely suicidal, (2) probably suicidal, (3) probably accidental and (4) definitely accidental. There was no uniformity in the reports, presumably because of the difficulty in obtaining a truthful or accurate history from a patient in coma or from his distraught relatives.

The total reported as definite accidents (309) was greater than the total reported as definite suicides (193), but in six reports there were more suicides than accidents. There were also twice as many probable accidents (ninety-eight) as probable suicides

derivative to be involved in poisoning as soon as it becomes popularized; viz., amytal. Nearly every barbiturate which has received clinical trial was used in one or more cases of poisoning in the present series. Specifically ten barbiturates were used: barbital 360 times, phenobarbital 121, amytal fifty-eight, alurate five, ipral three, pentobarbital three, ortal two and dial, phanodorn and seconal one each. Also nine mixtures of drugs were used, seven of two or more barbiturates and two of a barbiturate with aminopyrine. Allonal, of the latter type, was involved in forty-eight cases of poisoning. Whenever these drugs or any other barbiturates are mentioned, the simple drug name is understood to include the sodium salt and any proprietaries.

Fatal Dosages.—The data of the thirteen hospitals permit comparison of fatal and nonfatal dosages. Table 2 lists the minimum, maximum and median fatal and nonfatal doses of the barbiturates most frequently involved in the 643 cases of poisoning. Doses were obtainable for only ten of the thirty-one cases of lethal poisoning by barbital. These were distributed quite uniformly from 30 grains to 360 grains, the median dose being 90 grains. A smaller dose (20 grains) was reported to have caused fatality in a chronic user. The nonfatal doses of barbital range up to 500 grains with a median value of 50 grains, a little more than half the median dose of the fatal cases.

Doses were reported for six of the nine deaths due to phenobarbital. They are distributed from 25 grains to 280 grains with a median dose of 142 grains. In one authenticated case a woman succumbed to $7\frac{1}{2}$ grains, but the medical examiner's findings were: "Terminal edema of the brain following phenobarbital overdose. Cancer of the uterus." The extent of the carcinoma being unknown, it seems advisable not to count this as a case of phenobarbital poisoning. The maximum nonfatal dose of phenobarbital (140 grains) is nearly identical with the median dose in fatal cases of poisoning by the drug.

In a monograph on the misuse of hypnotics, Pohlisch and Panse² reported a series of fatal and nonfatal cases of poisoning by barbiturates which occurred in Germany between 1925 and 1932 inclusive. These have been tabulated with regard to dosage in table 3. The discrepancies between their figures and those in table 2 seem quite marked; but considering the shortcomings inherent in clinical histories and the resulting paucity of definite data, the fatal doses may well be accepted as being of the same order of magnitude. Pohlisch and Panse consider 4.5 Gm. (68 grains) the lower level of the danger zone for barbital, and doses of 10 Gm. (150 grains) or more as usually fatal. In the present hospital series the lower level of fatality is 30 grains, while doses above 90 grains are likely to be fatal. Leschke³ reported ten deaths (about 7.6 per cent) in a series of 131 cases of phenobarbital poisoning. He gives the mortality rate in barbital poisoning as nearly 25 per cent. The variations in the fatality figures in the different collections of statistics are probably due largely to the obvious difficulties involved in obtaining accurate clinical histories. Final evaluation of the fatal and nonfatal dosage limits of the barbiturates does not seem possible until more data have accumulated in the literature.

TABLE 1.—*Acute Poisoning by Barbiturates*

Hospital*	Hospital Admissions All Causes	Poisoning Excluding CO and Alcohol	Barbiturate Poisoning	Percentage of All Poisoning Cases	Percentage of All Admissions
	(A)	(P)	(B)	$\frac{B}{A} \times 100$	$\frac{B}{P} \times 100$
Boston City.....	331,451	2,214	391	17.7	0.118
Peter Bent Brigham, Boston.....	43,885	214	26	12.1	0.059
Cleveland City.....	129,983	†	69	....	0.046
University Clinics, Chicago (Oct. 3, 1927, to October 1938).....	63,076	117	18	15.4	0.028
University Hospitals, Cleveland.....	61,703	245	23	0.4	0.023
St. Mary's, St. Louis.....	75,024	99	18	18.2	0.024
Michael Reese, Chicago....	142,007	169	34	20.1	0.024
Presbyterian, New York....	135,352	444	22	5.0	0.016
Johns Hopkins, Baltimore (1936-1937 only)....	32,703	27	5	18.5	0.015
Baylor University, Dallas, Texas.....	109,198	293	15	5.1	0.014
Baltimore City (1935-6-7 only).....	25,356	114	3	2.6	0.012
Walter Reed General, Washington, D. C.....	74,067	†	7	....	0.000
Presbyterian, Chicago....	†	†	21	....	....
Totals.....			643		
Twelve hospitals excluding Chicago Presby- terian.....	1,254,465	.....	622	....	0.049
Chicago Presbyterian.....	1,050,415	3,036	555	14.1	0.053

* 1925-1937 inclusive except as noted.
† Not reported.

(forty-three). It seems likely that many cases labeled as accidents were really attempted suicides, patients and relatives disguising the intent of the poisoning. Twenty-three of the cases reported as definite suicidal attempts were fatal; so also were eight of the probable suicides. Ten definite accidental and seven probable accidental poisonings were likewise fatal. No definite correlation between etiologic category and size of fatal dose was apparent. The incidence of fatality, however, was distinctly higher for the suicides than for the accidents. There were thirty-one deaths from 236 combined suicidal attempts, or 13.1 per cent, but only seventeen deaths from 407 cases of accidental administration, or 4.2 per cent.

The most frequently used barbiturates were barbital and phenobarbital, or their soluble salts, often in proprietary form. Presumably, since they are the oldest and, therefore, longest publicized members of the group, they are also the best known. The hospital reports clearly show a tendency for each new barbituric acid-

2. Pohlisch, K., and Panse, F.: *Schlafmittel-Missbrauch*, Leipzig, Georg Thieme, 1934.

3. Leschke, E.: *Die wichtigsten Vergiftungen*, Munich, J. F. Lehmann Verlag, 1933, p. 165 (obtained from Report of the Council on Pharmacy and Chemistry: Present Status of Picrotoxin in Poisoning by Barbiturates, J. A. M. A. 112: 431 (Feb. 4) 1939).

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Mental Status.—The hospital questionnaires did not give specific information regarding the mental characteristics of the patients, but Pohlisch and Panse⁴ charted the mental status in 707 cases of acute barbiturate poisoning. These are given, slightly modified, in table 4. It will be observed that a negligible number of patients were considered mentally "normal" and that the majority were of the psychopathic personality type. Only 6 per cent were epileptics.

HYPERSENSITIBILITY

The thirteen hospitals reported a total of thirteen cases of toxic response to one, or relatively few, therapeutic doses of barbiturates, during the decade 1928-1937. These cases all came from six of the hospitals. Two cases from two other clinics were discarded as being chronic poisoning rather than hypersensitivity. Three hospitals stated they had not received any such cases, and the remaining two failed to make any statement. On the basis of the hospitals which made a statement, the incidence of hypersensitivity was about one case for every 90,000 admissions.

Data with regard to frequency of use were obtained on sixty-one of the barbiturate addicts. Two thirds of these (forty-two patients) took their drug daily, about one fourth (sixteen) used it occasionally, often for a "spree," and three were "frequent" users.

On admission to the hospitals, more than a third of the addicts (thirty-one) were in various stages of narcosis, presumably due to a superimposed acute barbiturate poisoning. In another third of the cases (thirty-one) no signs or symptoms of addiction were apparent or recorded, these patients presumably entering for some other reason. The remainder had various symptoms on admission, many showing signs of confusion.

Six of the addicts died from acute overdosage of barbiturate; five of them took it intentionally for suicide, and one death was reported as accidental.

When the barbiturates were withdrawn in the hospital, craving was recorded for twelve patients of the forty for whom data are available. Only one was reported to have had "withdrawal symptoms," which, however, were not described in detail. One patient

TABLE 2.—Comparison of Fatal and Nonfatal Dosages in 643 Cases of Acute Poisoning with Barbiturates in Hospitals in the United States (1928-1937)

Drug	No. of Cases	Fatal Doses				Nonfatal Doses			
		Fatal Cases	No.	%	Number with Known Dose	Minimum	Median	Maximum	Number with Known Dose
Barbital	300	31	8.6	10	30 grains	90 grains	50 grains	500 grains	197
Phenobarbital	121	0	0.0	6	25 grains	142 grains	26 grains	140 grains	60
Amytal	68	3	6.6	1	50 tablets	25 grains	25 grains	108 grains	36
Allonal*	48	2	4.2	1	50 tablets	50 grains	12 tablets	60 grains	32
Alurate	..	..	..	..	..	(83 grains)	(20 grains)	60 grains	1
(Amiaopyrine)	..	..	..	..	..	16 grains	24 grains	(100 grains)	3
Alurate	5	1	20.0	1	..	..	14 grains	15 grains	..
Pentobarbital	3	0	0.0	0	..	..	..	..	..

* According to the manufacturer's brochure, dated 1933, each tablet of allonal contains 1 grain of alurate and 1½ grains of amiaopyrine. The factor of amiaopyrine in the toxicity cannot be evaluated in this report.

The thirteen patients were distributed as follows: Seven were hypersensitive to barbital, four to a dose of 5 grains (0.3 Gm.), two to a dose of 10 grains (0.65 Gm.) (one of them a chronic alcohol addict) and 15 grains (one of them a morphine addict). Phenobarbital grains in one (a morphine addict) who took 1½ grains accounted for two patients, one who was questionably sensitive, reported as taking 3 grains (0.2 Gm.) daily for six days and one who was admitted to the hospital with amytal; one of 3 grains (0.2 Gm.) and one of 4½ grains (0.3 Gm.) and two cases with pentobarbital, 1½ and 3 grains (0.1 and 0.2 Gm.) respectively.

ADDICTION TO BARBITURATES

The thirteen hospitals together listed eighty-five cases under the heading of addiction to barbiturates, an incidence of about one case for every 15,000 admissions. No case of addiction was reported by three of the hospitals.

The relationship between addiction to barbiturates and addiction to all drugs (excluding alcohol) can be gained from data on the total number of patients with drug habit reported by six of the hospitals: Baylor University, Boston City, Peter Bent Brigham, New York Presbyterian and Michael Reese. During the decade 1928-1937 these clinics had 398 cases of addiction to all drugs (excluding chronic alcoholism), forty-three of which, or 10.8 per cent, involved barbiturates, about one of every nine addiction cases.

complained of insomnia, another of nervousness and two of dizziness. In twenty-two cases no apparent withdrawal phenomena were noted. These facts agree with the generally accepted opinion that barbiturates do not produce withdrawal symptoms in the sense that such symptoms occur in opiate addicts.⁵ Nevertheless, craving for the drug to the extent of continued use "in spite of strong medical advice to the contrary" is said to occur following daily therapeutic administration.⁶ Definite reports as to the source of the barbiturate habit were obtained for only seventeen (20 per cent) of the eighty-five addicts who were admitted to the hospitals. Nearly two thirds of these patients, eleven in number, attributed their addiction to the recommendation of a physician. Three patients acquired the habit on the advice of a "friend." One patient started to use this drug in response to an advertisement. Another patient was a nurse, and the other addict was also familiar with the drugs.

All but nine of the eighty-five addicts gave a reason for their habitual use of the barbiturates, and eight gave two reasons. More than two thirds, or fifty-two, used barbiturates for sedation or to combat insomnia. The next most common reasons, with eight patients (11 per cent) each, were substitution for alcoholism and to

5. Curran, F. J.: The Symptoms and Treatment of Barbiturate Intoxication and Psychoses, *Am. J. Psychiat.* 95: 73 (July) 1938. Willcox.
6. Willcox, William: Symposium on Hypnotics Including Barbiturates: Uses and Dangers of Hypnotic Drugs Other Than Alkaloids, *Proc. Roy. Soc. Med.* 27: 489 (Feb.) 1934.

obtain an exhilarating effect ("spree"). Six of the addicts (8 per cent) were psychopathic. Five were morphine addicts. Four patients used barbiturates because of nervousness. Only one patient was reported to be epileptic. Eleven per cent of the patients gave two reasons.

The duration of the barbiturate addiction was reported for fifty-four of the addicts. Three of these

TABLE 3.—Comparison of Fatal and Nonfatal Dosages in German Hospitals (1925-1932) (Charted from Data by Pohlisch and Panse²)

Drug	No. of Cases	No. of Known Dosage %	Fatal		Nonfatal	
			No. of Cases	Minimal Dosage, Grains	No. of Cases	Maximal Dosage, Grains
Barbital.....	22	10.8	11	65	181	150
Phenobarbital..	16	10.5	6	36	136	130
Allonal *.....	2	20.0	2	36 tablets	8	36 tablets
(Alurate).....	..	....	..	36 grains	..	36 grains
(Aminopyrine)..	..	....	..	54 grains	..	54 grains

* According to Pohlisch and Panse, each tablet of allonal contains 0.16 Gm. (2½ grains) of drug, of which 0.06 Gm. (1 grain) is alurate and 0.1 Gm. (1½ grains) is aminopyrine. This is very similar to the contents of allonal tablets sold in the United States (table 2) previous to the recent change in formula following the advent of the new Food, Drug and Cosmetic Act in 1938. The product on the United States market now contains the less dangerous acetophenetidin in place of aminopyrine. The manufacturers, Hoffmann-LaRoche, Inc., state that allonal now has the following composition: 22.7 per cent alurate (allyl-isopropyl barbituric acid "Roche") and 65.2 per cent acetophenetidin.

(5.4 per cent) had used the drugs for more than fifteen years and another three for from ten to fifteen years. Two (3.6 per cent) had been addicts for from five to nine years. The most frequent period of duration with seventeen patients (33 per cent) was from one to four years. Sixteen more cases (29 per cent) had existed for an unstated number of "years." Nine (16 per cent) of the habits were of between one and eleven months' duration and four (7 per cent) were less than of one month's duration.

The present hospital data throw but little light on the mental make-up of the addicts except as the number includes alcohol and morphine addicts and some psychopathic personality types. That the constitutional heritage of the individual is an important factor in the development of barbiturate habit is, however, amply demonstrated in the literature. Curran⁵ says: "Any substance . . . which through its central action tends to soften the emotional stresses and to render less tedious the everyday experiences of life may be a factor in the development of habituation. . . . There is much evidence to support the thesis that the administration of sedative and hypnotic drugs to the emotionally unstable is fraught with the possibility of inducing habituation." Sands⁷ has suggested that there are two types of individuals prone to develop barbiturate intoxication: (1) the manic-depressive types, who are most apt to take large doses with suicidal intent, and (2) the psychopathic constitutional types, who develop symptoms of chronic intoxication from habitual use of the drugs. McCowan⁸ in England has observed that barbiturate addiction is practically confined to psychopaths, many of whom are morphine addicts; but he feels that addiction to barbiturates is apparently no greater than to the other hypnotics. This liability of psychopaths, McCowan cautions, must be kept in mind

in prescribing for them. Robinson⁹ has compared barbiturate addiction to alcoholism. He considers that in all types of habitual usage of drugs there is a strong psychogenic factor which registers a certain personality pattern.

Curran⁵ observed that alcoholism was a factor in nearly one half (48 per cent) of fifty patients admitted to Bellevue Psychiatric Hospital because of intoxication by barbiturates. The next most common cause was menopausal symptoms. Marital difficulties came third. Other causes were insomnia, loss of money or occupation, neurotic symptoms or physical complaints including peptic ulcers, diarrhea and other intestinal disorders.

Pohlisch and Panse¹⁰ analyzed 179 cases of chronic barbiturate poisoning. They found that seventy-five of the patients (43 per cent) were also users of opiates, fifty-five were frank morphine addicts and the remaining twenty used small amounts of morphine irregularly without developing true morphinism. The authors' classification of the mental status of these chronic users of barbiturates is given modified in table 4. The data for the two sexes, being very similar, have been combined. It will be noted that more than 70 per cent of the patients were put in the psychopathic personality class.

CHRONIC POISONING

No specific data were obtained from the thirteen hospitals with regard to chronic intoxication. Their records, however, do demonstrate that acute poisoning from an overdose is not uncommon, because six of the fifty-eight addicts died in this fashion.

There is evidence in the literature that the prolonged use of the barbiturates may be harmful; but there are other reports which indicate the relative innocuousness of such use. The daily use of phenobarbital by the epileptic is an example of the latter. It is generally agreed that this drug only infrequently results in toxic side actions. In this connection, Sollmann¹¹ states: "The ordinary dosage may be continued indefinitely without cumulation, craving or toxic effects. There may be rather excessive torpor and sleepiness, some-

TABLE 4.—Mental Status in Barbiturate Poisoning Modified from Pohlisch and Panse²

Mental Status	Acute Poisoning		Chronic Poisoning	
	Number	Per Cent	Number	Per Cent
"Normal".....	24	3.4		
Psychopathic personality.....	413	58.4	127	70.9
Epilepsy.....	42	5.9	6	3.4
Psychoses.....	35	5.0	4	2.2
Debility and internal ailments...	26	3.7	7	3.9
Organic nervous disease.....	15	2.1	15	8.4
Undetermined.....	132	21.5	20	11.2
Totals.....	707		179	

* Schlafmittel-Missbrauch, pp. 18, 151.

times inebriation and rarely skin rashes." The literature contains many reports of isolated cases of skin rash, but there are no extensive data on the frequency of side actions in the epileptic. With the use of larger doses to control more severe cases, mental deterioration is reported; but how much of this is due to the disease rather than to the drug is difficult to evaluate. Hoge¹² reported that a woman had used from three to four

9. Robinson, G. W., Jr.: Addiction to Barbituric Acid Derivatives, J. Missouri M. A. 34: 374 (Oct.) 1937.

10. Pohlisch and Panse: Schlafmittel-Missbrauch, p. 151.

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COUNCIL ON PHARMACY AND CHEMISTRY

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ts (from three eighths to 6 grains, or from 0.024 to 0.4 Gm.) of amytal daily for several years and then only moderate tachycardia and slight anemia. Polatin¹³ gave eighty psychotic patients barbitally doses up to 30 grains (2 Gm.) over a continuous period of from one to twenty months and observed only a few toxic symptoms. All were relieved within twenty-four hours after withdrawal of the drug.

Such prompt clearing of minor toxic barbiturate effects is also quite uniformly observed on discontinuing the administration of phenobarbital to epileptic patients. In the epileptic, however, the severe psychologic changes may only partly improve. The factor of histologic damage to nervous tissue in man by barbiturates has not been determined. In cats and monkeys, however, Mott, Woodhouse and Pickworth¹⁴ have observed degenerative changes in nerve cells in the cerebellum, midbrain and spinal cord following daily oral feedings of barbitol and phenobarbital for periods up to several weeks. In their opinion some of the cells were "damaged beyond hope of recovery." They used daily doses of from 2½ to 5 grains (0.16 to 0.32 Gm.) for cats and from 5 to 10 grains (0.32 to 0.65 Gm.) for monkeys, which generally exceeds human therapeutic dosage. Despite this, cats recovering from prolonged narcosis after ten to fourteen days "showed no observable impairment of normal activity and intelligence."

In contrast to the usual paucity of serious symptoms on continued daily therapeutic use of the barbiturates, Stone¹⁵ reported two cases with marked toxic effects: 1. A professional man aged 45 stopped drinking because of alcoholic neuritis and started a barbiturate habit in an attempt to allay the resulting restlessness and insomnia. He developed visual, auditory and somatic hallucinations and marked persecutory delusions. On withdrawal of all sedation, recovery occurred slowly over more than three months. 2. An intelligent woman aged 59 received such heavy sedation for insomnia that she was forced to bed. For several months she had taken 3½ grains (0.23 Gm.) of sodium alurate several times a day until, when seen by Stone, she was mentally incompetent, doubly incontinent, markedly underweight and had to be spoon fed. Her spinal fluid was normal. When all medication was suspended, over a period of two months she gradually regained her weight, strength, ability to walk and sphincter control. But more than a year later, although physically robust, she was mentally childish. Stone raised the question whether, because of the patient's age, her mental deterioration might not be attributed to organic changes in the brain caused by the prolonged use of the barbiturates.¹⁴

Undoubtedly many more cases of chronic barbiturate poisoning have occurred, but few of these have been published.¹⁶ This may perhaps be due to the reluctance of physicians to record the occasional isolated cases which they observe.

INVOLVEMENT IN AUTOMOBILE AND CRIMINAL OFFENSES

Barbiturates have been charged with being concerned in the increasing incidence of automobile accidents and criminal assaults. This seems logical, considering the

sedative action of the drugs, but no literature is available on the subject. Letters of inquiry were, therefore, addressed to four leading toxicologists, three of whom replied.¹⁷ Each stated that as yet he had no information on this topic.

SUMMARY

1. During the decade 1928-1937, thirteen hospitals with combined admissions of more than 1,250,000 received 643 cases of acute barbiturate poisoning.
2. One out of every 1,900 admissions was due to acute barbiturate intoxication.
3. Barbiturates were responsible for one seventh of the acute poisonings due to all drugs except alcohol and carbon monoxide.

4. The fatality rate in the cases of acute barbiturate poisoning was 7.3 per cent.

5. As each new barbiturate has been introduced clinically and has become publicized there has been a noticeable trend toward its use in poisoning cases.

6. The lowest fatal dose for barbital reported by these hospitals was 30 grains (2 Gm.); the median dose in fatal cases was 90 grains (6 Gm.). For phenobarbital the minimum fatal dose reported was 25 grains (1.7 Gm.); the median dose 142 grains (9.5 Gm.). The wider margin of toxicity for phenobarbital is probably accidental.

7. Hypersusceptibility to therapeutic doses of a barbiturate was charged in thirteen cases admitted to ten of the hospitals, about one case for every 90,000 admissions.

8. Addiction to barbiturates was the reason for admitting eighty-five patients out of the total of 1¼ millions admitted for all causes, about one barbiturate addict in every 15,000 admissions.

9. Barbiturates accounted for more than 10 per cent of all addiction cases, excluding chronic alcoholism, admitted to the thirteen hospitals.

10. Two thirds of the barbiturate addicts who gave information claimed that they became familiar with the drug through a physician.

11. Nearly a third of the addicts for whom the barbiturate was recorded developed craving when the information was withheld.

12. None showed any serious withdrawal symptoms.

13. No factual data could be obtained concerning the involvement of barbiturates in automobile accidents and criminal assaults, although from the nature of the actions of these drugs this might be expected.

This present study and that previously published¹ were undertaken to compile and analyze the available information on the evils of the promiscuous use of the barbiturates as suggested in a report to the House of Delegates of the American Medical Association in June 1937. The evidence clearly indicates that these drugs are responsible for many suicides, successful and attempted, as well as for many so-called "accidental" intoxications. As each new barbiturate becomes publicized, it soon becomes involved in cases of poisoning. Barbiturate addiction is fairly common. It makes up about one tenth of all drug addiction cases (excluding chronic alcoholism) received by hospitals in the larger cities. Despite the probable involvement of barbiturates in automobile accidents and criminal assaults, no data concerning such crimes are available.

13. Polatin, Phillip: Prolonged Sedation with Sodium Barbital, *Psychiatric Quart.* 11: 213 (April) 1937, cited by Curran.³
14. Mott, F. W.; Woodhouse, D. L., and Pickworth, F. A.: Pathological Effects of Hypnotic Drugs upon the Central Nervous System of Animals, *Brit. J. Exper. Path.* 7: 325 (Oct.) 1926.
15. Stone, C. W.: Some Undesirable Effects from Prolonged Use of Various Barbiturates, *Ohio State M. J.* 32: 209 (March) 1936.
16. Purves-Stewart, James: Symposium on Hypnotics Including Barbiturates: Uses and Dangers of Hypnotic Drugs Other Than Alkaloids, *Proc. Roy. Soc. Med.* 27: 503 (Feb.) 1934. Wilcox.⁴

17. Personal communications to the author: A. O. Gettler, May 6, 1938; T. A. Gonzales, May 5, 1939; C. W. Mullerberger, May 10, 1938.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 18, 1940

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.
2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.
3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.
4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.
5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.
6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.
7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.
8. Expansion of public health and medical services consistent with the American system of democracy.

BARBITAL AND ITS DERIVATIVES

Ever since urea was prepared synthetically by Wöhler in 1828 its derivatives have occupied an important place in medicine and in research. Urea, as an amino compound, may be readily combined with acids. A classic example of synthesizing is the so-called malonic acid synthesis, in which urea and malonic acid combine to form malonylurea (barbituric acid). This has been the basis of many of the hypnotic agents, particularly those belonging to the barbitol series. By replacing the ethyl groups with other alkyl or aromatic groups it is possible theoretically to obtain more than 1,200 barbitol derivatives.

In 1903 barbitol (diethylbarbituric acid) was first introduced into medicine by Fischer and von Mering under the proprietary name of veronal. Its introduction

was followed in 1913 by phenobarbital (luminal), which in turn was rapidly followed by other salts of the malonylureas. After the war of 1914-1918 a rush to produce modifications of the original compound that were not covered by German patents became widely apparent. Not until 1923, however, was the intravenous and intramuscular use of the soluble salts of barbitol derivatives introduced. Since then the use of the malonylureas has been extensive among the medical profession and self administration by the public has brought about abuse. The effectiveness of barbitol and certain of its derivatives is well recognized. Adverse results from their use, whether due to improper application or to so-called unavoidable accidents, have led to condemnation.

In a report previously published in *THE JOURNAL*¹ it was shown that "the evils of these drugs [the barbiturates] include habit formations, toxic cumulative action, their substitution for alcoholic beverages for drunken episodes, their use for successful as well as unsuccessful suicidal attempts, their improper use being a recognized causative factor in many motor accidents and their improper use being a recognized etiologic factor in some criminal assaults. . . ." In the same report it was further shown that for 1936 in the United States alone 231,167 pounds of barbiturates were manufactured, of which 174,188 pounds were sold (1 pound = 7,000 grains). The total number of suicidal deaths by the barbiturates (in 1936) was near to 300, about 4.2 per cent of all deaths caused by poisons and 0.66 per cent of all² suicidal methods. The trend has been upward especially since 1933.

The barbituric addiction is particularly vicious. Members of the medical profession will certainly not believe that barbiturates are free from possibility of addiction. Other undesirable results of barbiturate medication which are important, but commonly overlooked, are the toxic manifestations from (a) idiosyncrasy,² recognized since the introduction of barbitol in 1903, and (b) long continued use, especially if the barbiturate is one of the longer acting members or if organic disease such as degeneration of the liver or vascular-renal system³ is present.

Elsewhere in this issue of *THE JOURNAL* appear an article by Hambourger⁴ presenting hospital data and a review⁵ of the regulations of the sale of barbiturates. Restrictions enforced by law have become increasingly necessary with the education of the public to the possibilities that lie in the ingestion of the malonylurea derivatives. Attention was sharply drawn to this prob-

1. Hambourger, W. E.: A Study of the Pramiiscuous Use of the Barbiturates: Their Use in Suicides, *J. A. M. A.* 112: 1340 (April 8) 1939.

2. Lundy, J. S., and Osterberg, A. E.: Review of the Literature on the Derivatives of Barbituric Acid, *Prac. Staff Meet., Mayo Clin. (supp.)* 4: 386 (Dec. 18) 1929.

3. Scarlett, E. P., and MacNab, D. S.: Poisoning from Phenobarbital (Luminal), *Canad. M. A. J.* 33: 635 (Dec.) 1935.

4. Hambourger, W. E.: The Pramiiscuous Use of the Barbiturates: II. Analysis of Hospital Data, this issue, page 2015.

5. Report of Bureau of Legal Medicine and Legislation, American Medical Association: Regulation of the Sale of Barbiturates by Statute, this issue, page 2029.

EDITORIALS

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in 1933 by Willeox,⁶ who discussed the existing dangers of barbiturates before the Royal Society of Medicine.

The Council on Pharmacy and Chemistry has long adopted the attitude that the practice of using nonvolatile substances as anesthetics, especially in inexperienced hands, is not safe. Except for those agents which are rapidly eliminated such as pentothal sodium and evipal soluble, the Council still maintains this attitude. More rigid enforcement of restrictions on the prescribing of these potentially dangerous drugs has the whole-hearted approval of the Council and of THE JOURNAL.⁸

ERADICATING PINWORM INFESTATION

Effective therapy in the control of oxyuriasis is not yet available, though many therapeutic measures have been proposed. The fact that pinworm infestation is usually a familial condition involving several or all members of a family does not make it any easier to control. A recent contribution by the United States Public Health Service¹ presents the results of tests with santonin and hexylresorcinol. Santonin has been long recommended; hexylresorcinol was first used in 1932.² The tests were made on sixty-two persons, outpatients of a clinic for parasitic diseases maintained in one of the hospitals of Washington, D. C., consisting predominantly of children (75 per cent) of the lower economic level. Diagnosis in all cases was made by means of a special cellophane swab.³ Inability to supervise posttreatment swab examinations closely did not permit making as many as seven such examinations in each case—the number which, according to other investigators, would detect 99 per cent of the total infestations.

Santonin was administered daily for ten days to twenty patients in doses varying, according to age and physical condition, from one-fourth to 1 grain (0.016 to 0.065 Gm.) and was found "relatively ineffective and unsatisfactory for the treatment of familial pinworm infestation," though eleven of these had had negative reaction. However, three of these had had fewer than seven swab tests. Hexylresorcinol was tested in four different ways: by enemas, by peroral single doses, by a combination of peroral and enema treatment and in jelly form.

The report regards the administration of hexylresorcinol by enema as the treatment of choice. Single

oral doses and the combined therapy, though tried out on fewer than five patients in each instance, were deemed "not dependably effective" or "not sufficiently encouraging." Hexylresorcinol jelly was found to be ineffective in preventing the migration of gravid females or in destroying gravid females or the viability of their ova. Hexylresorcinol was administered by enemas to twenty-seven patients in a 1:2,000 solution. Patients were given the drug in a suitable number of vials and instructed to follow up a preliminary soapsuds enema with the hexylresorcinol treatment (one quart for adults; as much as could be retained for children). Of the twenty-seven patients, eighteen showed a negative reaction, four of these "doubtfully" so. Yet the report says: "Considering the multiple factors involved in attempting an appraisal of the experimental results, we are of the opinion that the data show hexylresorcinol enemas to be of definite value if used in repeated treatments over a sufficient period of time. For satisfactory results in most cases, it would appear that the use of at least ten enemas spaced over a period of three weeks is necessary." Two of the patients, however, who received twelve enemas were still positive following the treatment. The report also says: "Better results might have been secured had we administered hexylresorcinol orally one or more times during the period of treatment with enemas. However, this was not done because of our inability to supervise the treatments closely." The drawbacks of hexylresorcinol treatment, it is pointed out, consist in the expensiveness of the drug and the necessity of applying treatments over considerable time. The report states that most of the anal ointments recommended in medical literature are of little or no aid in the control of pinworm infestation, though some of them appear to be of value in allaying pruritus. Non-medicated enemas, including soapsuds and saline enemas, are regarded as occasionally of advantage for infants and young children too small to take oral therapy satisfactorily, if repeated every other night for at least three to four weeks, in some cases longer.

PRIMITIVE TUBERCULOSIS

The distinctive aspects presented by tuberculosis in primitive races have often been the subject of investigation and discussion. Recently Cummins,¹ who is director of research of the Welsh National Memorial Association and experienced in the clinical features of tuberculosis among African Negroes, has pointed out again that the individual or race without previous contact with tuberculosis lacks resisting power. The power to resist is gained quickly, however, among civilized people, he says, because their ancestors have been subjected to a process of natural selection and only those have survived whose resistance is high as measured by their rapid

6. Willeox, Sir W. H.: Discussion on the Uses and Dangers of Hypnotic Drugs Other Than Alkaloids, *Proc. Roy. Soc. Med.* 27:489 (Feb.) 1934.

7. Nonvolatile Substances as Anesthetics, *Current Comment*, J. A. M. A. 95:1430 (Nov.) 1930.

8. Reprints of the reports of the Council on Pharmacy and Chemistry and of the Bureau of Legal Medicine and Legislation will be available at 15 cents each. In order to estimate the number of copies necessary, it is asked that requests be sent in immediately.

1. Wright, W. H.; Brady, F. J., and Bozicevich, John: Studies on Oxyuriasis, *Pub. Health Rep.* 54:2005 (Nov. 10) 1939.

2. Brown, H. W.: Treatment of Pinworm (Enterobius Vermicularis) Infestation with Hexylresorcinol, *Proc. Soc. Exper. Biol. & Med.* 30:221 (Nov.) 1932.

3. Hall, M. C.: Studies on Oxyuriasis, *Am. J. Trop. Med.* 17:445 (May) 1937.

1. Cummins, S. I.: *Primitive Tuberculosis*, London, John Bale Medical Publications, 1939.

elaboration of antibodies. The "primitive man" according to Cummins has not had the advantage of such selection and is therefore at a much lower point of the scale in ability to elaborate resistance. Nevertheless the biologic reaction to hypersensitivity is present and is rapidly produced following the entrance of the tubercle bacillus. Under favorable circumstances of nutrition and leisure the chances of survival are good even among primitive peoples unless subjected to overwhelming access of germs.

Cummins divides immunologic stages of tuberculosis as follows: 1. Indifference: no appreciable hypersensitivity or immunity. 2. Intolerance: (a) potential intolerance, (b) active intolerance. 3. Tolerance: (a) negative tolerance, (b) positive tolerance. This is further explained as follows: "The first phase of indifference was to be observed only at the beginning of a primary infection. The second intolerance might reveal itself either as a result of testing persons of European stock with tuberculin, when it would appear in the form of intolerance to that substance, though all the time the person was immune to the ordinary degree of infection, autogenous or exogenous, which usually reaches the body of one exposed to town life, or as 'active intolerance,' the activity revealing itself as a very high reaction to tuberculin and a tendency to violent reaction to the bacillus already in the body but stirred up to freedom in the tissues through unaccustomed hard work or the effects of new surroundings. Tolerance was a term for failure (or almost failure) to react to tuberculin and it was thought to be of two kinds: 'negative,' where hypersensitivity and immunity had been swamped by infection (anergy), a form well known in the last stages of tuberculous disease, and 'positive,' where hypersensitivity had been lost but immunity was operative (adiaphory), a form which is seldom observed but which can be brought about by desensitization with tuberculin or by autotuberculin in some instances. The weakness of these definitions is that they deal chiefly with extreme cases and leave out the essentially important intermediate stages. The term 'potential intolerance,' however, has much importance, as it admits that the ordinary person, reacting to tuberculin when tested but quite free from the disease tuberculosis, may, under certain circumstances, break down into the disease though he is now so healthy."

In his final conclusions, Cummins writes: "Tuberculosis will always be the enemy of primitive races and will take its toll the more heavily the more rapid is their emergence from primitive to civilized conditions." This seems to be a generalization not yet proved by facts and figures. There is for instance the Japanese population, certainly living for a long time on its own soil and surely not a "virgin population" to tuberculosis but still paying a high toll in mortality, more than

double that of the United States, white and colored population together. The course of epidemiology in tuberculosis cannot be explained so easily. Cummins furthermore does not take into account the steadily varying influence of social environment and social biologic factors which may diminish or increase the normal resistance of a population group and thus probably play a decisive part in epidemiology.

Although the constitutional influence on tuberculosis in primitive races may be important, complex questions of social environment are involved as well, and the hazard of too much speculation should be avoided.

Current Comment

A COMMENDABLE PROJECT FOR GRADUATE EDUCATION IN TUBERCULOSIS

Frequently THE JOURNAL has pointed out the manner in which physicians themselves do their utmost to keep abreast of newer methods in the diagnosis and treatment of disease. A project recently developed by the National Medical Association—national organization of Negro physicians and medical workers—for dissemination of further information regarding tuberculosis and for the control of this condition among Negroes in Chicago deserves special attention. By arrangement with the officials of the Municipal Tuberculosis Sanitarium a postgraduate school was set up in the South Side Municipal Tuberculosis Sanitarium and Dispensary in which, for four days a week and for two hours daily, members of the staff of the Municipal Tuberculosis Sanitarium gave instruction to Negro physicians. More than 90 per cent of the physicians who had registered for the course attended each of these sessions. The success of the project has been so great that it is now planned to continue similar courses for three months, four times a year. Opportunities are thus given to twenty physicians during each period for special training in tuberculosis. Moreover, arrangements have been made for an x-ray survey of those districts in Chicago in which the mortality and morbidity are highest. The Municipal Tuberculosis Sanitarium has a mobile x-ray truck equipped with a lens so that six centimeter films can be taken. Furthermore, leading members of the National Medical Association are devoting large amounts of their time for addresses to church groups, insurance groups, and civic and social groups, urging cooperation in this effort. Finally, through the cooperation of a "home for the friendless" organization, a building formerly occupied by that organization has been deeded to the Municipal Tuberculosis Sanitarium to provide facilities for 400 Negro patients. A large mass meeting for the promotion of these projects and for the raising of additional funds will be held in the near future. Movements of this type are a model of that spirit in the American democracy which causes the citizens to seek to help themselves and to accomplish the utmost that can be accomplished by individual effort before throwing the burden on governmental agencies.

ORGANIZATION SECTION

NATIONAL CONFERENCE ON MEDICAL NOMENCLATURE

Held in Chicago, March 1, 1940
DR. HAVEN EMERSON, New York, in the Chair

Purpose of the Conference

CHAIRMAN EMERSON: The undertaking we have to develop today began, I believe, in April 1929 in Berlin, when a half dozen physicians and statisticians met at the call of the League of Nations. The object of their meeting was to determine how international statistics could be more effectively used. On that program was the question of developing within nations a standard nomenclature and later a common international one. The meeting agreed, with the approval of the League of Nations' Health Section, to ask each nation to prepare within the next ten years its own idea of a desirable listing of all diseases by etiology and anatomic site for purposes of permanent classification. What we are now engaged on is the first decennial revision of the effort made by the voluntary group, which was supported by financial aid from various funds, insurance companies and others, some years ago.

Trends in Medical Terminology

DR. MORRIS FISHBEIN, Chicago: The taking over of the editing and publishing of the Standard Nomenclature by the American Medical Association was another of the tasks which have been taken up from time to time when others found it impossible to carry them on. All are familiar with the publication of the *Quarterly Cumulative Index Medicus*, which was taken over by the American Medical Association after the government, the Carnegie Foundation and other groups found it impossible to continue to carry it on. It has been continued by the Association for many years at an annual loss of about \$40,000.

The publication of a Standard Nomenclature is work of a similar type, necessary for the advancement of medical science through the development of a common language and a system whereby cases of disease may be suitably recorded. As I have traveled about the country and talked with professors of medicine and surgery, librarians and others, the main request heard seems to be toward the greatest possible simplification of a standard terminology, toward the elimination of as many unnecessary terms as can be accomplished. In general, there is definitely a movement in scientific nomenclature throughout the world toward eliminating eponyms. It is like the trade name on a "patent medicine" or a food. Eponyms are not truly descriptive, and it has seemed to me that scientific language should be descriptive as far as possible. To that extent I believe we ought to consider eliminating eponyms from any Standard Nomenclature.

There is a tendency nowadays to eliminate, as far as possible, terms from foreign languages in an effort to get a standard English nomenclature for use in institutions in the United States, Canada and Great Britain. Finally, in order to make this useful to readers whose minds run along historical or classical lines it might be desirable to include in the book, if not a glossary, a table of eponyms and foreign terms which have been translated into English terms, with a cross reference to the place at which the standard or adopted term is listed.

CHAIRMAN EMERSON: Great advance has been made in both the International List of Causes of Death and the present Nomenclature in elimination of names that are not precisely descriptive. We have had to make some concessions to affection, to history, to sentiment and to international usage, but so far as possible that practice has been followed.

Purposes, Function and Use of Standard Classified Nomenclature of Disease

DR. GEORGE BAEHR, New York: The Standard Classified Nomenclature of Disease is now employed in almost all important hospitals and medical schools of the United States and Canada. The success of this American enterprise is largely due to the manner in which it was prepared during the years preceding the publication of the first edition (1928-1933). It was initiated and carried to completion by the collaboration of all important national societies representing medicine, surgery and the specialties. Previously there had been hundreds of local efforts. As they multiplied in number and variety, their many authors failed to appreciate that they were modifications of preexisting efforts which merely perpetrated illogical and overlapping methods of classification, that each was colored by peculiarly local hospital needs and that in their separate parts they did not express the ideas or meet the demands of advanced experts in the highly specialized branches of medicine and surgery.

The purpose of a nomenclature is to encourage the use of expressive terms, the meaning of which can be accepted universally without ambiguity. The best term is the one which most completely expresses the nature of the disease. The primary purpose of a classified nomenclature is to arrange the diseases in a logical and orderly manner so that there may be no possibility of overlapping one another. Now that almost all important hospitals use the Standard Classified Nomenclature, the disease files of their record rooms are mutually interchangeable. Their clinical experiences are readily available for study as well as for comparison with the experiences of other institutions. The chief virtue of the Standard Classified Nomenclature of Disease is that from beginning to end it never departs from the simple construction of its basic schema. Every disease is described and classified topographically, in terms of the tissue or organ where it is principally manifested, and also into etiologic categories. This has permitted the use of a simple library decimal system which facilitates record room filing.

There has been some complaint that the six or more numbers necessary to designate a disease or injury do not lend themselves as readily for punch card recording as some simpler numerical system. It must be remembered that the primary purpose of the Standard Nomenclature is for clinical use. It is to encourage uniformity and accuracy in clinical expression. Our dual decimal system for the numerical designation of the diseases permits the employment of the Standard Classified Nomenclature of Disease as a clinical discipline, not only for fourth year medical students who as clinical clerks are being taught to think and to express themselves accurately, but also often as a much needed clinical discipline for the attending staff of the hospital. The resistance of clinicians to making the little extra effort required by the use of the Standard Nomenclature is soon replaced by appreciation of an orderly disease file in the hospital record room. In 1937, on behalf of the National Association, I proposed to turn over to the American Medical Association the permanent responsibility for the Nomenclature. In effecting the transfer the hope was expressed that the Association would continue to work through the medium of a national conference, composed of all the other interested organizations. Suggestions have been advanced that the Standard Classified Nomenclature of Disease is too large. A significant abbreviation of diseases of rarer occurrence. The volume would then lose its value even for small

hospitals. The size of the volume and the number of terms it contains do not complicate the problems of the record room clerk or of the hospital physicians. The size and complexity of the disease file of a record room are not determined by the size of the Standard Nomenclature. There are some who think the Standard Nomenclature is not large enough and who demand an opportunity to record various clinical manifestations of disease or even laboratory observations. This is beyond the scope of a nomenclature of disease. A criticism of the Nomenclature is that it does not lend itself readily to cross reference to the rubrics of the International List of the Causes of Death. After each disease, the appropriate code number of the international list is to be found. This can be transferred to punch cards for statistical tabulation. In this manner morbidity can be compared statistically with information regarding mortality.

Although this third edition of the Standard Classified Nomenclature of Disease may not require revision for ten years, a central staff must continue to be maintained as the clearing house for the exchange of opinions on the use and the significance of both new and old diagnostic terms.

International Nomenclature and the International List of Causes of Death

DR. HALBERT L. DUNN, Washington, D. C., chief of the Division of Vital Statistics of the Bureau of the Census: The revision in Paris in the fall of 1938 was the result, as far as the League of Nations goes, of several years of intensive work by a committee of the American Public Health Association, a subcommittee of the Committee on Standards called the Subcommittee on Certified Accuracy of Causes of Death. Dr. Emerson was chairman of that committee and Dr. Baehr was a member of it. The new list varies much from the old, particularly in the rubrics involved with heart disease and probably with accidents, and rheumatic involvement of the heart. The detailed list is included in the Physicians' Handbook, which has just been published with an index. For all relatively simple purposes the handbook itself can be used as a coding mechanism for the list. The book has gone to press and should be available within a month or a month and a half for those who want it. We have a sufficient quantity of the Physicians' Handbook to distribute to the physicians of the country and have enough over to give medical students and to use for training purposes in years to come.

The publication of the International List in book form, which will contain in it the complete joint cause manual and the special rules for coding joint causes, will be available only at purchase, except for about four or five thousand copies which will be placed in laboratories and hospital record rooms where coding is a daily function. The International List is not a nomenclature like the one which we have met to consider. This list is used to produce statistics around certain definite, fixed categories rather than a classification built to establish the cause of disease or to locate the specific case that a particular physician might be interested in reviewing. Because it has that purpose, it is necessary to establish an index to the International List. The deaths which are recorded in this list come from many sources. Many of the death certificates are filled out with unsatisfactory terminology. We try to get it in better shape, but when one can't get a better term that particular cause of death, unsatisfactory though it is, must be placed somewhere in this list. It must be placed in a consistent category; otherwise one wouldn't know what the rubrics contained. If it is too unsatisfactory, it is simply placed in a miscellaneous category, which means we don't know much about the content of meaning of that particular rubric.

Another problem is what to do with multiple causes of death when they are returned on the death certificate. The way that has been done, as far as our own country goes, is to form an arbitrary system of selection which has been called a Manual of Joint Causes of Death. Some of the International List rubrics will show great consistency in the usage of medical terms. Out of the typhoid rubric, 99 per cent of those terms will come in as typhoid fever. There are other rubrics in which there will be gross discrepancy with reference

to how doctors use the original descriptive term. The homogeneity of the various rubrics is going to be studied intensively as a part of the future development of this list. That material will be in the hands of the next committee on certified causes as it starts to work, so that it can have available a picture of the consistency of medical usage of these terms.

There is constant pressure for additions to the International List. The pressure results primarily from two conflicting points of view. One is the necessity, in statistical studies of death, to keep comparability with the past. It is necessary, even as we change the list, to keep up with medical practice, new medical terminology. We don't like to make it impossible, in a revision of this list, to find out the statistics in the same way as they had been reported in the past. It breaks the continuity of studies to do this. However, the pressure for change, in order to get the material into a new form which will be more useful in the advancement of the science of medicine, must be taken into consideration. This has resulted in many breakdowns of those rubrics, which must be considered as time goes on in relation to comparability with the past and the values inherent in the new medical point of view. Simplification of the list will depend on such considerations. We have to make adjustments, and when their significance becomes realized we must break with the past and put up appropriate bridges which will help us interpret the statistics of the future with the past. That perhaps covers the main considerations of where the list fits into this nomenclature.

The standard Nomenclature is adapted to the needs of physicians in their hospital practice. It is not adapted for a statistical tabulation of the type that the International List has been adjusted to care for. The physician is not primarily interested in such use at this time, but there are many groups that are interested especially in the hospital insurance field. They need it desperately. It ramifies through all the evaluation of the risks involved in hospitalization of certain diseases. When such a list is created, it becomes essential that that list be correlated with the International List of Causes of Death. Without such a correlation it will be impossible to get case fatality rates which are desirable. There are many errors—at least we think they are errors—in the way the International List numbers have been placed on the terms in this book. I should like to offer all the help we can give to making that kind of correction when the new volume is edited.

DISCUSSION ON PAPERS OF DRs. FISHBEIN, BAHR AND DUNN

DR. HOWARD FOX, New York (American Dermatological Association): Dr. Baehr said that the Nomenclature is used in a great many of our best hospitals. It has been accepted also by most of the colleges and important national organizations. In editing my periodical I insist that every name follow the Standard Classified Nomenclature of Disease. Textbook writers are bound by the same rules, but I have found that a good many of them coin new names of their own. I would make a plea for every one to follow, as far as possible, this book. In looking over my own special chapter, I have been astounded to see the diseases that are given as causes of death included in the International List. In this list are such diseases as *acne milium* (prickly heat), webbed fingers and *keratosis pilaris*, which merely means rough skin. The Chairman told me before we came in that those are included because some one made that diagnosis as the cause of death, and they must be there. Just because some one gave a ridiculous cause of death, we should not continue to include this nonsense in the next revision of the book.

MISS DOROTHY L. KURTZ, New York: Our staff at the Columbia Presbyterian Medical Center wished me to urge this conference to consider some practical answer to the criticism that the Nomenclature is too complicated. Every time I talk to members of the staff I hear that when they have to make a secondary diagnosis outside their own field they feel at a loss. They don't feel that they should spend the time to select the right term, and they often omit it or merely guess at it. That admission is made repeatedly by the best men on the staff. Medical record librarians from different parts of the country express the opinion that their staffs go through the

ORGANIZATION SECTION

same experience. A group of men from the Public Health Service and the Immigration Service visited our hospital to see if they might adopt the nomenclature for their purposes, but although they admired its scholarly quality it was utterly unsuited to their purposes. One of the advantages of the Nomenclature is that it comprises the preferences of various specialties. But to ask a general physician to be familiar with a specialty, or to ask one specialist to be familiar with another specialty to the extent that the original one was, is not working. Possibly an abridged form that would suit the public health groups might offer a solution. If that should be decided on, it might be possible in the hospitals to have a complete book in the record department for reference and to have each of the services furnished with the abridged list, each one with its own special chapters from the original book. That would also answer the complaint that it is too bulky. Possibly a committee could study it and offer a more carefully thought out solution. If hospitals that are well regulated and familiar with the book find that it is quite common to omit terms because they can't bother to find them in other than their own fields, this represents another point in which the Nomenclature is not meeting its aims. I feel that is as important as a revision and further refinement of the book in its present form.

DR. MONTAGUE L. BOYD, Atlanta, Ga. (American Urological Association): I have been working with the Nomenclature from the beginning. In fact, when the National Conference took over the Nomenclature I began adapting the nomenclature I had already devised for the American Urological Association to the etiologic and regional classification prepared by Drs. Emerson and Baelr. My problem has been from the clinician's side, to get the urologists interested in the Nomenclature, which is almost an impossibility as it is at present. The American Urological Association has published a nomenclature for the urologist in which terms are listed under the organs in alphabetical order, with an elaboration and references to the proper term to be used, when a man looks up something like a Hunner ulcer. I am interested in whether these terms are to be limited or whether you are going to add to them. From an educational standpoint the essential thing is for the specialist to add to the terms and have available all of the diseases to which he can refer under his specialty. Since the last publication of the Standard Classified Nomenclature and I have forty-five more here to add. I think this conference ought to take some stand on that matter.

CHAIRMAN EMERSON: Three matters have been brought up for critical opinion. One of them is whether there should be an abridged list and, if so, how it should be made. Another one is how we can simplify the relationship to the International List of Causes of Death. And the third is whether there shall be a mechanism by which an all inclusive encyclopedia for the specialist shall be included with the International List or the Standard Nomenclature. These are problems which will have to be referred to special committees.

DR. GEORGE BAEHR, New York: In speaking of abridgment do you mean the preparation of a tabular list for statistical recording or an abridged Classified Nomenclature of Disease?

CHAIRMAN EMERSON: I gather that the demand has been that there should be for current use in hospitals not only the complete Standard Classified Nomenclature but an abridged list for usual ward use, which could be expanded as desired.

DR. MORRIS FISHBEIN, Chicago: We should keep in mind the possibilities in the development of a book like the Standard Nomenclature and also the practicabilities in the situation and the special needs. I would like to emphasize the point made by Dr. Dunn. Language is not static and knowledge in medicine is not static, and it becomes necessary to carry over from the past into the present, and to contemplate, at the same time, the future. Such lists are constantly in a state of evolution. We do not set up a Standard Nomenclature today that we know is going to be good five years from now. We take it for granted that it is necessary constantly to keep on advancing, but we know also that no group can advance much faster than the majority in the group. The purpose of this Standard

Nomenclature, as I see it, is to carry the profession forward to some extent, and merely because a considerable number of clinicians working in the wards do not care to take the time to write scientific diagnoses, as listed in the Standard Nomenclature, but prefer to use some term which they have carried with them from their student days is no reason why we should not attempt to make progress by encouraging people to step along with the advancement of the profession. We make advancement only by setting standards high and then by endeavoring to encourage the profession to follow those standards. That is the purpose of the Standard Nomenclature. There is constantly, at the same time, an effort to drag back; you shouldn't have raised the standard of medical education as far as you have. What we really need are one year nurses and two year doctors." We have all of these motives working at present in relationship to the development of the Nomenclature. It is going to be impossible, from a printing point of view and from meeting costs, to endeavor to prepare several different books: one book of considerable scope that used by clinicians, another book of considerable scope that would be used in the hospital library and in the office of the record librarian, a third book which would attempt to fit the Standard Nomenclature to the International List of Causes of Death. We have to get out one book which will represent a reasonable standard. We must take advantage of Dr. Dunn's offer to fit that, as nearly as possible, with the International List of Causes of Death. Then we must encourage our record librarians to do their utmost with the clinicians to make them use this standard book.

DR. HALBERT L. DUNN, Washington, D. C. (American Statistical Association): This matter of accepted terminology has a basic, philosophic issue underlying it. That is not a committee problem. We have tried, in a way, to make a sort of nomenclature out of the Cause of Death List by saying that we will limit the list to certain approved terms which we like. We have put those right into our nomenclature but, at the same time, we recognize that we are going to get a lot of others which, while not approved terms, are going to be coded in such and such a way. So they stick indefinitely. When a term isn't approved that doesn't necessarily mean it is an unsatisfactory term. It might be a poor term and be loosely used. Again, it might be the term that is coming into vogue and that will be used by everybody five years from now. What makes that term satisfactory depends on how many people use it and whether they use it the same way, and not whether we like it from the English point of view. That is the whole question is whether we can create something that is rigid in terminology and make doctors fit their diagnoses into it, when frequently they might not want to put them there. This deserves the deep consideration of this conference, because the success of the Nomenclature depends on it. I think we have a philosophical question that has to be solved by the whole group.

DR. BAEHR: On the part of clinicians there is a great impatience with the inadequacies in the International List of Causes of Death and with the fact that terms are found scattered under different rubrics that really belong together. This is because when one tries to get international agreement between forward looking and backward looking countries it is often difficult to achieve a compromise which means moving forward, so that now disease conditions which, though still achieved, come traditionally under different rubrics can be brought together by the vital statistician, so that one can know the incidence of rheumatic fever as expressed in mortality reports. The movement to secure international usage of a nomenclature for morbidity had its origin some years ago in the International Hospital Association, which, recognizing the need for uniform usage in hospital record rooms, appointed a committee on which various countries had representatives. Sir Humphry Rolleston was designated by the British Ministry of Health; Dr. Achard, who has long been interested in this subject and is secretary of the French Academy of Medi-

cine; and Bastianelli was designated by the Italian government. There were about eight or ten governments that delegated representatives to work on this problem. The basic schema of our Standard Nomenclature was universally acknowledged as the satisfactory basis on which to build an International Nomenclature. No matter what the diseases might be called in different countries, officially the pigeonhole was there, so that morbidity information between countries ultimately could be exchanged with a certain degree of comparability. The International List of Causes of Death was primarily devised by vital statisticians, with relatively little organized assistance on the part of clinicians. Under the influence of Drs. Dunn and Emerson a beginning was made toward putting some clinical interest into the International List and obtaining the advice of clinicians. More of the clinical background in the past would have served to improve the applicable usefulness of the International List of Causes of Death.

CHAIRMAN EMERSON: I should say it would take at least thirty years—that is, three international conferences—before anything in the way of an international agreement on nomenclature of disease could be accomplished. We have been working since 1890 on the International List, and each ten years marks a distinct advance in usefulness. We are at the same point now with regard to nomenclature at which we were when the first International List was adopted at the meeting in Chicago in 1890. We must establish our philosophy at this time. I think we shall find that there are ways which will make it possible, within one publication, to serve the needs that have been suggested here.

A Standard Nomenclature of Operations

DR. H. PERRY JENKINS, Chicago: There have been several operative terminologies published in recent years, each organized in a somewhat different manner and presenting different terminologic points of view. The Surgical Nomenclature of the New York Hospital, devised by Dr. Ray and Miss Lincoln, employs a system of code numbering for different operations and is classified into a system comparable to the disease nomenclature. It more closely resembles the Standard Disease Nomenclature than other operative terminology.

In preparing a standard operative terminology, the most useful features of the several publications which have appeared thus far should be consolidated. It would be desirable to have it classified into systems, as well as organs, in the same manner in which the Standard Nomenclature of Disease is classified. Under each separate organ would come the classification of operations. The names of operations by the Western Surgical Society, edited by Dr. Black, combines the simple English term on one side of the page and the regular Latin term, or the name of the organ plus the suffix "ectomy" or "otomy" adjacent or parallel to the simple English term. That feature should be incorporated into any ultimate standard operative terminology. There is the matter of how to handle different operations. For example, there are operations that may be done in multiple stages. Should all those operations be filed separately? Then there is the question of terms that lack specificity. To be scientific is another thing that should be taken into consideration in connection with a standard operative terminology.

DISCUSSION

CHAIRMAN EMERSON: Dr. Jenkins, do you believe it is desirable to include in such a publication as this either a supplementary or an interpolative list which will make it possible to classify operations under some basis yet to be determined?

DR. H. PERRY JENKINS, Chicago: Either as a separate book or as a supplement, yes.

DR. EDWIN P. JORDAN, Chicago (American Medical Association): There has been a considerable demand for a surgical terminology. Most of that demand has taken the form of a request for something which could be related to the Standard Nomenclature of Disease. At present there are many surgical terminologies. The publishers of several surgical terminologies have indicated a desire to merge their interests in something which could be more generally accepted. Several people have indicated their willingness to cooperate in attempting to prepare

such a volume or list or terminology which would try to combine the better points of them all. Dr. Jenkins has compiled one terminology of operations which is widely used, Dr. Ray another, and Dr. Ponton another. All of them have indicated that the larger interests of the question of terminology could be best served by attempting to adopt some standard terminology.

DR. WARREN P. MORRILL, Chicago (American Hospital Association): The philosophy of the Standard Nomenclature was to erect a nomenclature on a definitely scientific basis, without much effort to accommodate it to common usage. That has, so far, proved the most difficult hurdle in securing its use. If we are going to add an operative nomenclature—surgery is only one form of therapy—why not set up one for sulfanilamide, for instance, sulfapyridine, mercury, arsenic, quinine? There is no stopping place when we start to put therapy in with the nomenclature of disease.

DR. KELLOGG SPEED, Chicago: I speak on behalf of Names of Surgical Operations, devised by the Western Surgical Association, printed in 1935, the committee for the preparation of which I was a member. We would welcome an opportunity to have surgical nomenclature added to this standard book on Nomenclature of Disease. We found in our efforts that there were 3,300 or more names of operations given in Dorland's dictionary in 1933. It is difficult for the clinician to use so many intelligently, for the student to learn them or for the record librarian to adopt them in filing. We therefore made an attempt to reduce the number on a simple English basis to about 700 names, which may be amplified according to the character of the operation. We took the opportunity to eliminate all proper names from surgical procedures, thus bringing it down to a basis which might be used in international usage. We found great difficulty, from a philologic basis, in adapting the compound words with Greek and Latin roots to a common basis which was correct, and we finally had to adopt the idea that usage and custom is what makes the word, what makes the description and names the operation.

DR. BRONSON S. RAY, New York: I am one of the compilers of the New York Hospital Nomenclature of Operations that has been referred to. We felt a need for such an index and nomenclature in 1935 and set about finding whose we could adopt. Dissatisfied with any one else's, we built our own entirely by the method on which the Disease Nomenclature had been built. The Disease Nomenclature includes two groups of numbers, topographic and etiologic. The Operative Index and Nomenclature we devised has also two numbers, topographic and the procedure which corresponds to the etiologic division. With this method we could handle most of the difficulties that arose. We published a book in 1938 and sent complimentary copies to all the professors of surgery in the medical schools of the country and to the record librarians of about 250 associated hospitals. We have been using it and have indexed the operations in our hospital for four years. About 100 other hospitals have also used it for a year or longer. We have found no great difficulty in using it, nor have other hospitals. Some hospitals have complained that it has not been inclusive enough, others have complained that it is too inclusive, and still others want to make some arrangement whereby nonsurgical procedures can be included in it. Because other hospitals began to use this index, we began to feel a little uneasy about the situation, because if a number of hospitals set such an index up and within a short time a standard one for the country of a different sort was made, it would mean that all these hospitals would have to discard what they had already done. My purpose in saying anything is to urge the formation of a Standard Nomenclature of Operations. All hospitals in the country are anxious that such a standard be established.

DR. M. T. MACEachern, Chicago (American College of Surgeons): There is a tremendous demand for a good Nomenclature of Operations. I have six nomenclatures in my library. I would like to speak on behalf of Dr. Carl Lenhart, head of the department of surgery at the University Hospitals in Cleveland. They have developed a good one and I am sure they would like to cooperate in a joint plan of getting one out that would be of a standard nature. I think we should do it and use

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Dr. THOMAS J. ... of Operations that ... Surgical Association

The Adaptation of Disease to the Environment: Reports

Ph.D., New York City, from mortality statistics.

a hospital mor-

The four considerations which the Welfare Council has suggested are: (1) the guiding principle, (2) the guiding principle, (3) the guiding principle, (4) the guiding principle.

acceptable arrangement of the inpatient diagnostic

- 2 The discarding of the accompanying the major mutations of the same

- Neither the Mayo surgical operations, nor the view it is desirable to have the operations prepared in advance.

There are numerous factors which could be correlated with such as total days in hospital, I would like to see the following statistics:

1. A uniform comparison of mass holdings for comparative purposes and that fully prepared and

- Punch Cards and Applied to Morbidity: A punched card

F. WALKER, Chicago

One can employ cards or different styles of type to be made in a variety of codes and other codes and

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was started in May 1938, and was carried forward by the regular staff and backward through 1937 by WPA workers. It has been used on some 200,000 records. A small electrical key punch is used, and a sorter with a card counter attached and a multiple brush which makes it possible to select a long code of six places at one operation. Cards bearing a Standard Nomenclature code of five places, such as 23513 Head of femur, can be obtained by putting the cards through the machine once. This smaller group of cards can then be put through, with the multiple brush set to select all fracture codes: -416, -417, and -418. This short cut makes it unnecessary for us to maintain a file of diagnostic indexes in addition to the punched card. We have a file of case histories, a card file of patient name cards, and the punched cards.

With this system, if a doctor comes in and asks "If some one had one or two fingers cut off, does he ever develop urticaria?" I could say "If you had such a case and put it on the record, we could find it." The doctor thus feels a new respect for his new ideas and a new incentive to get things in the record when he sees them.

Are the Standard Nomenclature codes too long and cumbersome for punched card use? A shorter code would be preferable provided it told as much and was as flexible in the making of new codes. The topographic code linked with an etiologic code has many advantages in flexibility of analysis. Perhaps this is particularly true at the County Hospital, where we have a general hospital and psychopathic, pediatric, tuberculosis and contagious disease hospitals, and departments in the surgical specialties large enough to be compared with special hospitals.

We do not use mechanical tabulation. If tabulation is an important consideration, I believe that an abbreviated code such as that of the International List of Causes of Death or the Classified List recently furnished by the Research Bureau of the Welfare Council of New York City could be advantageously associated with the Standard Nomenclature.

After a patient enters the County Hospital it may require quite a list of codes to describe his condition, but provision is made for punching only three diagnoses on a card. The three that are most interesting from the standpoint of diagnosis and treatment given are selected. If there are more than three a number is punched indicating that fact, and the additional codes are written on the back of the card. These diagnoses are included in reviews by hand analysis.

The three diagnoses use thirty-six columns on the card. Part 2 of the card, consisting of eighteen columns, accommodates the information for the general code, such as service and attending doctor to whom patient was assigned, the patient's age, sex, color or race, nativity, occupation, present address, date of discharge, length of stay and the result.

There are twenty-six columns allowed for special codes, providing flexibility for special detail in different departments. The obstetric department has a code of its own, the ophthalmologic department another. In surgery we have made use of the coding as given in the New York Hospital Classified Nomenclature of Operations.

These codes form an important part of our system. It is the way around the bottleneck which stops many punched card systems from coming through on schedule. These codes are not at all alike—they don't have to be. Some of the most useful codes are the shortest. Our analysis sheets are simple. We will use a peg board spread—a perpetual inventory, growing month by month, service by service, into an annual report.

The punched card system was made for the hospital and not the hospital to produce a model punched card system. The punched card furnishes an index and a summary, not a complete case history.

Massachusetts Experience in Reporting Mental Disorders

DR. NEIL A. DAYTON, Boston: Since 1928 we have had in operation a centralized statistical system in Massachusetts. A new statistical system was written at that time, and installed in the sixteen mental hospitals and state schools under the department. A central training course was held for the various clerks. They were taken to a central institution in the middle of the state. A week's work was given them, working with actual

case records, and then they went back to their institutions and started the use of the system. We had two clerks informed in every institution as to the method of carrying out the work. We have thirteen mental hospitals, three state schools for mental defectives, the mental wards of the state formerly at Tewksbury, the criminal hospital for the criminally insane, two veterans' hospitals and one large private hospital, McLean, under our system. All of them are sending cards in a routine manner to the department to cover every admission, discharge and death throughout the year. Our system is a three card system. The first card indicates the patient admitted to the hospital or in residence; the second card, not in residence but on the books. The third card means separation from the system as a whole, through discharge or death. We have a large master file in the central department which contains statistical cards on all patients admitted or discharged from our mental hospital. It is possible in the central department to go to the file and find the record of any patient who has been in any of our mental hospitals back to 1889.

In making up codes for research projects there is always a temptation to use a printed code and not operate directly to a card. I think this is by far the simplest method. In this instance the clerk takes the case record folder, sits down with the record, takes one of these cards and circles the information on the card. There is no writing, no coding to be done other than this. The material on this card, if written out, takes about two and one-half typewritten pages. The operator of the punching machine sets the circled card right on top of the magazine and punches the card directly from the circled card. Then when she runs the cards through the machine she holds the punched card up to the circled card before a strong light and by looking through she has an instant check on the card. If any of the circled portions of the circled card do not correspond to the punched card, it can be seen by holding the card up to a strong light. It obviates the necessity of punching a card a second time for a check on the punch method. The operators are fast. They can go through a card in ten or twelve seconds.

We have in the psychiatric classification a condensed classification. We had 150 items and we have reduced them to twenty-six. We set up this condensed classification and then give the detail in the second column. One would be circled for schizophrenia; the designation simple, hebephrenic, catatonic, paranoid and others would be circled 1, 2, 3, 4 or 5 in the second column. When the statistics are made up at the end of the year, it means a sorting on a single column and not a sorting on a number of columns.

We have many demands in the department for the names of patients coming under certain diagnostic classifications. For instance, some one wants to conduct a study on hebephrenia and he will ask "How many patients have you in all your institutions?" The system now involves twenty-one different institutions, and using the alphabetical index we can send the list back to the institution, arranged in alphabetical order. We use two blank spaces on the discharge card to record data that would not be on the admission card. This is the form of discharge, whether or not the patient was discharged from hospital, discharged from the physician, discharged from family care, discharged from escape, or cause of death on any of those items.

Our centralized statistical system takes all of the statistics out of the institutions and places them in a centralized location. It is a function now of the central department and not of the individual institutions. We have been able to work out the methodology, so there can be no variation between institutions. Everything is carried out in the same way in every institution. We have conferences every now and then for the statistical clerks, in which we iron out common problems. By taking the work out of the institutions and making it a central function, we avoid the unnecessary duplication of the institution making up an annual report and then the central department making up an annual report. When we have completed the institutional reports for the twenty-one institutions we combine them into the large report of the department of mental health, which is a volume of some 500 pages and involves 289 tables on admissions, discharges, deaths and resident population. The patients discharged from our mental hospitals last year had remained in the hospital an average of nine months. The patients who died

in the hospital had been there for an average of five and one half years. All patients leaving hospitals had been there an average of one year and nine months.

We are also able to provide immediate information on the hospital turnover without waiting to the end of the hospital year. At present we have a monthly report that comes back from our superintendents, from which we make up comparative statistics. We are continually getting requests from the Department of Public Welfare and interested agencies as to statistics on mental disease, and this gives us a way of answering these questions without having to wait until the end of the year. The card coming in from the institution is sent in thirty days after the patient is admitted. We give that interval because of the necessity for a complete history of mental disorders. All discharges and deaths come in within five days.

DISCUSSION

CHAIRMAN EMERSON: Dr. Dayton can you tell us how far you used the Standard Classified Nomenclature in elaborating your twenty-six categories of disease under which you classify your cases?

DR. NEIL A. DAYTON, Boston: We followed the Standard Nomenclature exactly. We have all the items that are used in the Nomenclature, but we have a condensation. For example, in schizophrenia there is one general heading of schizophrenia. Under that are assigned five or six different numbers of the Nomenclature. We have the schizophrenic in the first column. In the second we have the additional numbers for the others. So we have the complete Nomenclature, but it is used in that condensed form.

(To be continued)

REGULATION OF THE SALE OF BARBITURATES BY STATUTE

PREPARED BY THE BUREAU OF LEGAL MEDICINE AND LEGISLATION, AMERICAN MEDICAL ASSOCIATION

Twenty-seven states have enacted laws, as of May 1, 1940, regulating the sale of barbiturates.¹ In all but one of these states, retail sales of such drugs to consumers may be made only on prescription. In Oklahoma, such sales may be made either on prescription or without a prescription if the pharmacist records the sale in much the same manner as he is required to record sales of poisons generally.

The laws that have been enacted follow no well defined pattern with respect either to the framework of the law or to the drugs included. In four states² the regulation of the sale of barbiturates is accomplished through the medium of food, drug and cosmetic acts. In two other states³ such drugs are brought within the purview of narcotic drug acts. With respect to the coverage of the several laws there is a wide divergence. The laws do not all limit the included drugs to barbiturates, a number of states including other hypnotic or somnifacient drugs. A panoramic picture of the situation in this respect is presented by the following list of drugs included in one or more of the twenty-seven state laws. The names of the drugs are reproduced as they appear in the laws and without regard to approved terminology:

Allonal	Phenobarbital
Amytal	Propional
Barbital	Sandoptal
Barbituric acid (malonylurea)	Veronal (barbitone)
Diethylbarbituric acid	Carbromal
Ipral	Chloral (chloral hydrate)
Luminal	Chlorbutanol
Medinal	Diethylsulphon diethylmethane
Neonal (soneryl)	(Tetronal)
Noctal	Sulphonethylmethane (trional)
Phanodorn	Sulphonmethane (sulphonal)

In practically all of the states compounds, derivatives and preparations of the included drugs are covered.

Compounds, derivatives and preparations intended for external application, such as gargles, sprays or liniments, are specifically excluded, subject to certain restrictions, from the prescriptions contained in the laws of seven states.⁴

In ten states the laws definitely either forbid the refilling of prescriptions⁵ or provide that they may be refilled only on the direction of the prescriber.⁶ In New York, by a rule of the board of Regents of the University of New York, no prescription for a hypnotic or somnifacient drug intended for internal use may be refilled if it bears the statement of the prescriber that it is not to be refilled. In two states that otherwise forbid the refilling of prescriptions except on the written order of the prescriber, prescriptions for phenobarbital may be refilled without such written order.⁷ In one state,

Virginia, the law definitely says that a prescription may be refilled. In the other states the laws contain no express provision with respect to the refillability of prescriptions.

The provisions of the laws that have been enacted to date with respect to the drugs included, the limitations imposed on their sale, the records to be kept, and the labeling requirements are abstracted in the analysis that follows. The phrase "included drugs" as used in the analysis refers to the drugs that are covered in the particular law. In some of the laws reference will be found to a requirement imposing on pharmacists a duty to retain prescriptions for barbiturates or other included drugs in their files for a definite period of time. The absence of such a reference in other laws does not necessarily mean that there is no such requirement in those states, because there may be a general law imposing the requirement with respect to all prescriptions. The analysis follows:

Alabama

1. Citation: Laws of Alabama, 1935, Act No. 236.

2. Drugs Included: "Barbital, sulphonethylmethane (trional), sulphonmethane (sulphonal), diethylsulphon diethylmethane (tetronal), paraldehyde and chloral or chloral hydrate or any derivatives, compounds or mixtures of any of the drugs possessing hypnotic properties or effects."

3. Limitations on Sales: Included drugs may not be sold, furnished or given away except on the "original written order or prescription of a lawfully authorized practitioner of medicine." The law does not indicate whether or not a prescription may be refilled.

4. Records: The law contains no requirement as to the keeping of records of sales.

5. Labeling Requirements: The law does not specify that containers of any of the drugs must bear any label.

Arkansas

1. Citation: Laws of Arkansas, 1935, Ch. 113 and Ch. 327.

2. Drugs Included: "Barbituric acid or derivatives and compounds thereof under any copyrighted or chemical name."

3. Limitations on Sales: Included drugs may not be sold except on the prescription of a "legally qualified physician or by a legally qualified dispensing physician." Excepted from this restriction are sales by manufacturers or chemical houses to wholesale drug houses or to hospitals or retail pharmacies or by wholesale drug houses to hospitals or to retail pharmacies. No prescription may be refilled.

4. Records: Orders "by the retail pharmacy or hospital or dispensing physician, dentist or veterinarian" from wholesale drug houses, chemical houses or manufacturers must be in writing, in triplicate, one copy given to the seller, one copy to the food and drug division of the state board of health, and the original copy retained by the purchaser. The orders must be preserved for at least two years by the wholesale drug houses, chemical houses or the manufacturer or pharmacy or hospital, subject to inspection by any officer of the state board

1. Alabama, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Maine, Maryland, Minnesota, Mississippi, Nebraska, Nevada, New Jersey, New York, North Carolina, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, Washington and West Virginia.

2. Connecticut, Florida, Nevada, North Carolina.

3. Vermont, West Virginia.

4. Colorado, Nebraska, New Jersey, New York, Oklahoma, Rhode Island, Vermont.

5. Arkansas, Colorado and Mississippi.

6. California, Minnesota, Nebraska, Oklahoma, Oregon, Vermont, Washington.

7. California and Oregon.

of health. A dispensing pharmacist must keep all prescriptions for any of the included drugs in a separate file for at least two years, subject to inspection by any officer of the law or by any inspector of the state board of health.

5. Labeling Requirements: The law does not require that containers of any of the included drugs must be labeled in any particular manner.

California

1. Citation: Laws of California, 1931, Ch. 249.

2. Drugs Included: "Veronal, barbital (acid diethylbarbituric) or any of its salts, derivatives, or compounds of the foregoing substance, or any preparation or compound containing any of the foregoing substance, or its salts, derivatives or compounds, or any registered, trade-marked or copyrighted preparation or compound registered in the United States patent office containing more than forty (40) grains to the avoirdupois or fluid ounce of the above substance."

3. Limitations on Sales: No person may sell, furnish or give away or offer to sell, furnish or give away any of the included drugs, "except upon the written order or prescription of a physician and surgeon, dentist or veterinary surgeon duly licensed to practice in the State of California." The law does not apply to sales at wholesale by drug jobbers, drug wholesalers and drug manufacturers to pharmacies or to physicians, dentists or veterinary surgeons, "nor to each other, nor to the sale at retail in pharmacies by pharmacists to each other or to physicians and surgeons, dentists or veterinary surgeons duly licensed to practice" in California. No prescription may be refilled "without the written order of the prescriber," except that any prescription for phenobarbital or any preparation, mixture or compound of phenobarbital may be refilled without such written order.

4. Records: A prescription or order must be preserved for at least three years from the date of filing and must be open at all times to inspection by duly authorized officers of the law.

5. Labeling Requirements: The law contains no requirement that containers of any of the included drugs must bear any particular type of label.

Colorado

1. Citation: Laws of Colorado, 1935, Ch. 106.

2. Drugs Included: "Salts of barbituric acid also known as malonylurea," "sulphonethylmethane (trional) or sulphonmethane (sulphonol) or diethylsulphon diethylmethane (tetronal) or carbromal, by whatever name they may be known, or paraldehyde," and chloral or chloral hydrate, or any derivative, compound or mixture or preparation thereof possessing hypnotic properties or effects. The law includes the foregoing drugs only when used internally. Expressly excluded are sprays, gargles and liniments if used externally and all compounds, mixtures or preparations intended for external use if they are sold in good faith and contain other drug or drugs conferring medicinal qualities.

3. Limitations on Sales: The law prohibits the sale or dispensing at retail of any of the included drugs except on a written prescription of a duly licensed physician, dentist or veterinarian. Only "one sale" may be made on each prescription. The law specifically excepts from its provisions dispensing by a duly licensed physician, dentist or veterinarian to patients "under their immediate supervision." A prescription may not be refilled.

4. Records: The law does not specify that records must be kept of the sale of any of the included drugs.

5. Labeling Requirements: A pharmacist must place on the container of a dispensed drug a label bearing his name and address, the date the prescription was compounded, the consecutive number of the prescription, the name of the prescribing "physician, dentist or veterinarian," and directions for use as given on the prescription. Manufacturers, jobbers, pharmacists or other dealers in any of the included drugs must keep such drugs in a container, the label of which must contain conspicuously in printed words the specific name of the drug and the proportion or amount thereof in the container.

Connecticut

1. Citation: Laws of Connecticut, 1939, Ch. 364.

(In Connecticut, the Food, Drugs and Cosmetic Act declares a drug to be misbranded if it is a drug sold at retail for use by man and contains any quantity of barbituric acid or any derivative thereof, unless it is sold on a written prescription signed by a member of the "medical, dental or veterinary profession who is licensed by law to administer such drugs, and its label shall bear the name and place of business of the seller, the serial number and date of such prescription and the name of such member of the medical, dental or veterinary profession.")

Delaware

1. Citation: Laws of Delaware, 1939, Ch. 92.

2. Drugs Included: Barbital, which is defined to mean "the salts of barbituric acid, also known as malonylurea, or any derivative or compound or any preparations or mixtures thereof containing more than ten grains to the avoirdupois or fluid ounce of the said substance," and other hypnotic or somnifacient drugs, defined to mean "sulphonethylmethane (trional) or sulphonmethane (sulphonol) or diethylsulphon diethylmethane (tetronal), or paraldehyde or any derivative or compound, or any preparation or mixture containing more than ten grains to the avoirdupois or fluid ounce of the said substances and chloral or chloral hydrates, or chlorbutanol, or any compounds or mixtures thereof containing more than ten grains to the avoirdupois or fluid ounce of the said substances when such chloral or chloral hydrates or chlorbutanol, or compounds or mixtures thereof are to be used internally." The law applies also to any of the substances specified by whatever name they may be known.

3. Limitations on Sales: No included drugs may be sold at retail or dispensed to any person except on the written prescription of a duly licensed physician, dentist or veterinarian, the term "physician" being defined to mean any duly licensed physician of any school of practice. The law contains no prohibition against the refilling of a prescription but imposes on every pharmacist, physician, dentist, veterinarian or licensed jobber dispensing any of the drugs the duty of keeping an accurate record "of all renewals."

4. Records: Pharmacists, physicians, dentists, veterinarians and licensed jobbers must keep a record of the name and address of the patient for whom the drug is prescribed, the date and the name and quantity of the drug dispensed, and an accurate record of all "renewals."

5. Labeling Requirements: A pharmacist who sells any of the included drugs on prescription must attach a label to the container bearing the name and address of the pharmacist, the date compounded and the consecutive number of the prescription under which it is recorded in his files, the name of the physician, dentist or veterinarian who prescribed the drug, and the directions for the use of the drug as given on the prescription. Manufacturers, pharmacists, jobbers or other dealers must place on the container of any included drug a label stating conspicuously in printed words the specific name of the drug and the proportion or amount in the container, such label being not required when the drug is dispensed by a pharmacist on a prescription and the container is labeled in the manner described.

Florida

1. Citation: Laws of Florida, 1939, Ch. 19656.

(The Food, Drug and Cosmetic Act of Florida declares a drug to be misbranded if it is a drug sold at retail for use by man and contains any quantity of barbituric acid, unless it is sold on a written prescription signed by a member of the medical, dental or veterinary profession who is licensed by law to administer such drugs, and its label bears the name and place of business of the seller, the serial number and date of the prescription, and the name of such member of the medical, dental or veterinary profession.)

Georgia

1. Citation: Laws of Georgia, 1939, Act No. 184.

2. Drugs Included: "Amytal, luminal, veronal, barbital, acid diethylbarbituric, sulfanilamide, pronylin, neo-prontosil, or any

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alts, derivatives or compound of the foregoing substances, or their salts, derivatives or compounds or any trade marked or copyrighted preparation or compound registered in the United States Patent Office containing more than four (4) grains to the avoirdupois or fluid ounce of the above substances."

3. Limitations on Sales: No person, firm or corporation or association may sell, give away, barter, exchange, distribute or possess any of the included drugs except on a prescription of a duly licensed physician, the term "physician" being defined to mean a person authorized by the laws of Georgia to practice medicine and any other person authorized by law to treat sick and injured human beings and animals in the state and to use, mix, prepare, dispense and administer drugs in connection with such treatment. Excepted from the law are sales at wholesale or to physicians qualified to practice their profession according to law, and sales by pharmacists in drug stores to one another. The law apparently places no restriction on the refilling of a prescription.

4. Records: The law does not require that records be kept of sales.

5. Labeling Requirements: A pharmacist who dispenses any of the included drugs is required to write on the container thereof the name of the patient, the name of the physician prescribing the drug, the name and address of the drug store or pharmacy from which the drug is dispensed, and the date of the prescription. A physician who dispenses any of the included drugs is required similarly to label the containers of the drugs.

Maine

1. Citation: Laws of Maine, 1933, Ch. 204; Laws of 1939, Ch. 209.

2. Drugs Included: "Veronal or barbital or any other salts, derivatives or compounds of barbituric acid or any registered, trade-marked or copyrighted preparation registered in the United States Patent Office containing the above substance."

The board of registration in pharmacy is authorized by regulation to designate as "potent medicinal substances, any compounds of barbituric acid, which are likely to be injurious to health if improperly used, and it shall be unlawful for any person, firm or corporation to sell, furnish or give away, or to offer to sell, furnish or give away any of such potent medicinal substances so designated," except under the conditions set forth in section 3 of this analysis.

3. Limitations on Sales: No person, firm or corporation may sell, furnish or give away, or offer to sell, furnish or give away any of the included drugs except on the written order or prescription of a physician and surgeon, dentist or veterinary surgeon. The proscription does not apply to sales at wholesale by drug jobbers, drug wholesalers and pharmacists, manufacturers to registered pharmacists and pharmacies, registered nurses, hospitals, registered nurses, dentists, veterinary surgeons, hospitals, "nor to each other." Neither does the act apply to retail sales in pharmacies by pharmacists to each other, to physicians and surgeons, to dentists, veterinary surgeons, hospitals or registered nurses. The law specifically provides that nothing in it shall be construed to affect the right of a "physician and surgeon, dentist, veterinary surgeon or registered nurse in good faith and in the legitimate practice of his profession personally to administer, prescribe or deliver any of the foregoing substances." There is no prohibition against the refilling of prescriptions.

4. Records: The law imposes no requirement with respect to the keeping of records of sales.

5. Labeling Requirements: There is no provision in the law relating to the labeling of containers of included drugs.

Maryland

1. Citation: Laws of Maryland, 1935, Ch. 172; Laws of 1937, Ch. 237.

2. Drugs Included: Barbital, defined to mean "the salts of barbituric acid, also known as malonylurea, or any derivative or compounds or any preparations or mixtures thereof." The law also embraces other hypnotic or somnifacient drugs, defined to mean "sulphonethylmethane (Trional) or sulphonmethane

(Sulphonal) or diethyl-sulphone, diethyl-methane (Tetral), or paraldehyde or any derivatives or compounds or any preparations or mixtures thereof and chloral or chloral hydrate, or chlorbutanol or any compounds or mixtures thereof when such chloral or chloral hydrate or chlorbutanol or compounds or mixtures thereof are to be used internally." It is further provided that the law shall apply "to any of the above mentioned drugs, or any derivatives or compounds or any preparations or mixtures thereof, as above set forth, whatever may be the name under or by which the same may be called or known."

3. Limitations on Sales: No included drug may be sold at retail or dispensed to any person in Maryland except on the written prescription of a duly licensed physician, dentist or veterinarian. The proscription does not apply to the administering or dispensing of included drugs by duly licensed physicians, dentists or veterinarians to bona fide patients when administered or dispensed in good faith. The law does not indicate whether a prescription may or may not be refilled.

4. Records: There is no specific requirement as to the keeping of records of sales.

5. Labeling Requirements: A pharmacist must affix a label on containers of drugs dispensed on prescription, bearing the name and address of the pharmacist, the date the prescription was compounded, the consecutive number of the prescription in the pharmacist's file, the name of the prescriber and directions for use as given on the prescription. A manufacturer, pharmacist, jobber or other dealer in drugs must affix a label on the container of such drugs, stating conspicuously in printed words the specific name of the drug and the proportion or amount thereof, such label being unnecessary when the drug is dispensed by a pharmacist on a prescription and the container is labeled in the manner indicated in the preceding sentence.

Minnesota

1. Citation: Laws of Minnesota, 1939, Ch. 102 and Ch. 193.

2. Drugs Included: Barbital, defined to mean "barbital and any derivative thereof; diethylbarbituric acid; any alkyl, aryl, metallic or halogenated derivative of barbituric acid; veronal (barbitone); propional; ipral; neonal (soneryl); sandoptal; amyltal; phenobarbital (luminal); phanodorn; noctal; allonal (which contains allylisopropyl-barbituric acid in combination with amidopyrine); medinal; any preparation, mixture or other substance containing any of the foregoing substances."

3. Limitations on Sales: No person, firm or corporation may sell, give away, barter, exchange or distribute barbital, except on a written prescription of a doctor of medicine, doctor of dental surgery or doctor of veterinary medicine, lawfully practicing his profession in Minnesota. The law does not apply to sales by wholesale drug concerns, registered pharmacists, licensed pharmacists, doctors of medicine, doctors of dentistry, doctors of veterinary medicine, or any bona fide hospital or other bona fide institutions wherein sick and injured persons are cared for or treated, or bona fide hospitals where animals are treated. The law further provides that a licensed doctor of medicine, or a licensed doctor of dentistry, in good faith and in the course of his professional practice only, may prescribe, administer and dispense barbital, or he may cause the same to be administered by a nurse or intern under his direction and supervision. The written or verbal consent of the prescriber is necessary to legalize the refilling of a prescription and if the consent is verbal it must be given directly from the prescriber to the pharmacist who refills. The pharmacist must note in ink or indelible pencil on the original prescription the date of the consent and the name of the pharmacist.

The law further provides that a licensed doctor of veterinary medicine, in good faith and in the course of his professional practice only, and not for use by a human being, may prescribe, administer and dispense barbital, and he may cause the same to be administered by an assistant under his direction and supervision.

4. Records: The pharmacist must indicate, in ink, on the prescription the fact that it has been compounded and the date compounded and must retain the prescription in a separate file for at least two years open to the inspection of any officer on whom the duty devolves to enforce the act.

5. Labeling Requirements: The container of a drug dispensed on prescription must bear a label containing the directions specified on the prescription and must contain the following warning: "Use Only As Directed."

Mississippi

1. Citation: Laws of Mississippi, 1940. Ch. — (H. Bill No. 150, approved March 22, 1940).

2. Drugs Included: "Barbituric acid and any compound, manufacture, salt, derivative mixture, or preparation of barbituric acid."

3. Limitations on Sales: Included drugs may not be sold, bartered or given away except on the written prescription of a physician, dentist or veterinarian, authorized by law to practice his profession and "possessing a current federal narcotic license." (A pending amendment proposes to substitute for the quoted phraseology the following: "duly registered with the Collector of Internal Revenue under the Harrison Act.") The law does not apply to sales by a wholesaler or manufacturer to any licensed dealer in the included drugs; to the "sampling" of such drugs to physicians, dentists or veterinarians by representatives of the manufacturer; nor to sales of "patent" or "common" medicines handled and sold by drugstores and commissaries, prepared and designated by reputable manufacturers for exclusive use in the treatment of sick mules, horses, cows, dogs, cats or other animals. No prescription may be refilled.

"Possession or custody" of included drugs by a physician, dentist or veterinarian, qualified as stated in section 2 of this analysis by representatives of manufacturers and by laboratories approved by the state board of pharmacy, is declared lawful. The use of such drugs for scientific and medical purposes and for purposes of instruction is expressly authorized.

4. Records: The law does not prescribe that records shall be kept of sales.

5. Labeling Requirements: The law contains no provision with respect to the labeling of containers of the included drugs.

Nebraska

1. Citation: Laws of Nebraska, 1935, Ch. 64.

2. Drugs Included: Barbital, defined to mean "the salts of barbituric acid also known as malonylurea, or any derivative or compounds or any preparations or mixtures thereof possessing hypnotic properties or effects." The law also includes other hypnotic or somnifacient drugs, defined to mean "sulphonethylmethane (trional) or sulphonmethane (sulphonal) or diethylsulphone diethylmethane (tetronal) or carbromal, or by whatever name they may be known, or paraldehyde or any derivatives or compounds or preparations or mixtures thereof possessing hypnotic properties or effects, and chloral or chloral hydrate or chlorbutanol or any compounds or mixtures thereof possessing hypnotic properties or effects, when such barbital or other hypnotic and somnifacient drugs, or any derivatives or compounds or mixtures or preparations thereof are to be used internally." Expressly excluded are compounds in which barbital, or derivatives thereof, are used for synergic action when the medicinal properties of the other drugs contained in the compound render it incapable of being used for its hypnotic properties or effects. Exempted from the provisions of the law also are compounds or mixtures or preparations intended to be used as a spray or a gargle or a liniment or in any other wise for external application, provided such compound, mixture or preparation contains, in addition to the content of barbital or other hypnotic or somnifacient drugs, some other drug or drugs conferring on it medicinal qualities other than those possessed by the barbital or other hypnotic or somnifacient drugs and that such compounds, mixtures or preparations are sold in good faith for the purpose for which they are intended and not for the purpose of evading the provisions of the law.

3. Limitations on Sales: No included drug may be sold at retail or dispensed to any person except on the written prescription of a duly licensed physician, dentist or veterinarian. The law does not prevent, however, retail sales to physicians, dentists or veterinarians for dispensing to their "patients," provided such sales are made on the signed order of such physician, dentist or veterinarian. Wholesale sales by manufacturers, pharmacists, jobbers or other dealers in drugs are not proscribed

by the act. Furthermore, the provisions of the section limiting the sales of included drugs are specifically made inapplicable to "a duly licensed physician, dentist, or veterinarian, when in their judgment they deem it advisable to dispense any of the aforementioned drugs to their patients under their immediate supervision." No prescription may be refilled except on the written order of the duly licensed physician, dentist or veterinarian.

4. Records: The law imposes no requirement that records of sales be kept.

5. Labeling Requirements: A pharmacist must affix to the container of an included drug dispensed on a prescription a label bearing the name and address of the pharmacist, the date the prescription was compounded and the consecutive number of the prescription under which it is recorded in his prescription file, together with the name of the prescriber and the directions for the use of the drug as given on the prescription. No manufacturer, pharmacist or jobber or other dealer in drugs shall sell or have in his possession any included drug unless the container bears a label stating conspicuously in printed words the specific name of the drug and the proportion or amount thereof, such label not being necessary, however, when the drug is dispensed by a pharmacist on a prescription and the container is labeled in the manner described in the preceding sentence.

Nevada

1. Citation: Laws of Nevada, 1939, Ch. 177.

(The Food, Drug and Cosmetic Act of Nevada declares a drug to be misbranded if it is a drug sold at retail for use by man and contains any quantity of barbituric acid, unless it is sold on a written prescription signed by a member of the medical, dental or veterinary profession who is licensed by law to administer such drugs, and its label bears the name and place of business of the seller, the serial number and date of the prescription, and the name of such member of the medical, dental or veterinary profession.)

New Jersey

1. Citation: Laws of New Jersey, 1933, Ch. 279.

2. Drugs Included: Barbital, defined to mean "the salts of barbituric acid, also known as malonylurea, or any derivative or compounds, or any preparations or mixtures thereof possessing hypnotic properties or effects." The law also includes other hypnotic or somnifacient drugs, defined to mean "sulphonethylmethane (trional) or sulphonmethane (sulphonal) or diethylsulphone diethylmethane (trional) or carbromal, by whatever name they may be known, or paraldehyde or any derivatives or compounds or preparations or mixtures thereof possessing hypnotic properties or effects, and chloral or chloral hydrate or chlorbutanol, or any compounds or mixtures thereof possessing hypnotic properties or effects, when such barbital or other hypnotic and somnifacient drugs, or any derivatives or compounds or mixtures or preparations thereof are to be used internally."

Specifically exempted are compounds, mixtures or preparations intended to be used as a spray or as a gargle or a liniment or in any wise for external application if they contain, in addition to the content of barbital or other hypnotic or somnifacient drug, some other drug or drugs conferring medicinal qualities other than those possessed by the barbital or other hypnotic or somnifacient drug, provided such compounds or mixtures or preparations are sold in good faith.

3. Limitations on Sales: No included drug may be sold at retail or dispensed to any person except on the written prescription of a duly licensed physician, dentist or veterinarian. The law does not apply to dispensing by physicians, dentists or veterinarians to patients under their immediate supervision, if the required records are kept. The law is silent with respect to the refillability of prescriptions.

4. Records: A physician, dentist or veterinarian who dispenses an included drug must keep a record of the date the drug is dispensed, the kind of drug, the quantity, and the name and address of the patient.

5. Labeling Requirements: A pharmacist must affix a label to the container of an included drug dispensed on prescription bearing the name and address of the pharmacist, the date the

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prescription was compounded, the number of the prescription in the pharmacist's file, the name of the prescriber and directions for use as given on the prescription. No manufacturer, pharmacist, jobber or other dealer shall sell or have in his possession an included drug unless the container bears a label stating conspicuously in printed words the specific name of the drug and the proportion or amount thereof, such label not being necessary when the drug is dispensed by a pharmacist on a prescription and the container is labeled in the manner described in the preceding sentence.

New York

1. Citation: Laws of New York, 1939, Ch. 778.

2. Drugs Included: Barbitol, defined to mean "the salts of barbituric acid, also known as malonylurea, or any derivative or compounds or any preparations or mixtures thereof possessing hypnotic properties or effects." The law also includes other hypnotic or somnifacient drugs, defined to mean and include "sulphonethylinethane (trional) or diethylsulphonethylinethane (tetronal) or carbromal, by whatever name they may be known, or paraldehyde or any derivatives or compounds or preparations, or mixtures thereof possessing hypnotic properties or effects, and chloral or chloral hydrate or chlorbutanol or any compounds or mixtures or preparations thereof to be used internally." The law is inapplicable to any compound or mixture or preparation intended to be used as a spray or a gargle or a liniment or in any other wise for external application which contains, in addition to the included drug, some other drug or drugs conferring on it medicinal qualities other than those possessed by the included drug, and such compounds or mixtures or preparations are sold in good faith.

3. Limitations on Sales: No included drug may be sold at retail or dispensed to any person except on the written prescription of a duly licensed physician, dentist or veterinarian. The law does not apply to a duly licensed physician, dentist or veterinarian when in his judgment he deems it advisable to dispense any of the aforementioned drugs to his patients under his immediate supervision, provided the required records are kept. While the law itself contains no prescription for the refilling of a prescription, Rule 30 of the Board of Regents of the University of New York provides that no prescription for a hypnotic or somnifacient drug intended for internal use shall be refilled if it bears a statement by the prescriber that it is not to be refilled. (See *New York State Journal of Medicine*, Feb. 1, 1940, p. 156.)

4. Records: A licensed physician, dentist or veterinarian who dispenses an included drug must keep a record of the date he dispenses the drug, the name of the drug dispensed, the quantity and the name and address of the "patient."

5. Labeling Requirements: The container of an included drug dispensed on prescription must bear a label showing the name and address of the pharmacist, the date the prescription was compounded, and the consecutive number of the drug by which it is recorded in the pharmacist's files, the name of the prescriber, and directions for use of the drug by the patient as given on the prescription. Manufacturers, pharmacists, jobbers or other dealers in drugs who sell other than on prescription must affix a label on the container stating conspicuously in printed words the specific name of the drug and the proportion or amount thereof in the container.

North Carolina

1. Citation: Laws of North Carolina, 1931, Ch. 162; Laws of 1939, Ch. 320.

(In 1939, a new Food, Drugs and Cosmetic Act was passed in North Carolina under which a drug is declared to be misbranded if it is a drug sold at retail for use by man and contains any quantity of barbituric acid, unless it is sold on a written prescription signed by a member of the medical, dental or veterinary profession who is licensed by law to administer such drug, and its label bears the name and place of business of the seller, the serial number and date of such prescription, and the name of such member of the medical, dental or veterinary profession. To the extent that this 1939 law regulates the sale of "barbituric acid" it apparently supersedes the earlier act passed in 1931, an analysis of which follows.)

2. Drugs Included: "Sulphonmethane (sulphonal); sulphonethylinethane (trional); diethyl sulphonethylinethane (tetronal); diethyl barbituric acid (barbital); or any of the foregoing by whatsoever trade name or designation, or any compound, preparation, mixture or solution thereof, or any salt or derivative thereof or of barbituric acid possessing hypnotic properties or effects; chloral hydrate or any mixture or solution thereof containing twenty grains or more thereof to the fluid ounce."

3. Limitations on Sales: No included drug may be sold in quantities exceeding twelve therapeutic doses except to persons known to be suffering with epilepsy, the limitation not applying to prescriptions of duly licensed physicians, doctors of dental surgery or doctors of veterinary surgery. The law does not limit the sale of included drugs to nor dispensing by duly licensed physicians, doctors of dental surgery, or doctors of veterinary surgery lawfully practicing in the state, or to registered retail or wholesale pharmacists, or to hospitals and other institutions for the treatment of defective, afflicted, sick and injured persons. The law contains no restriction with respect to the refillability of prescriptions.

4. Records: Every person dispensing any included drug, other than on prescription, must record in a book kept for the purpose the name of the drug sold, the quantity delivered, the date of delivery, the name and address of the purchaser and the name of the dispenser, which record shall at all times be open to the inspection of the proper officer of the law.

5. Labeling Requirements: The law does not impose any requirement with respect to the labeling of containers of included drugs.

Oklahoma

1. Citation: Laws of Oklahoma, 1933, Ch. 77.

2. Drugs Included: "Veronal, barbitol (acid diethylbarbituric), luminal, or any chloral hydrate, bromidia or any of the salts, derivatives, compounds, manufactures or mixtures of any of the foregoing substances, or any preparation or compound containing any of the foregoing substances or their salts, derivatives, manufactures or compounds, or any registered, trademarked, or copyrighted preparation or compound thereof registered in the U. S. Patent Office, containing more than ten grains of acid diethylbarbituric, or more than ten grains of chloral hydrate, in one fluid ounce, or, if a solid or semi-solid preparation in one avoirdupois ounce," except remedies, ointments or other preparations which are prepared for external use only.

3. Limitations on Sales: (a) It is declared unlawful for any pharmacist to sell to or any practitioner of medicine, osteopathy, or dentistry to prescribe any of the drugs listed under section 2 of this analysis, or somnos, for habitual users of such drugs. The law provides, however, that a lawfully authorized practitioner of medicine may prescribe "narcotic drugs" who is for the use of any habitual user of such substances as he may deem necessary for their treatment when such prescriptions are not given for the purpose of evading the provisions of the law.

(b) No person, firm, corporation, copartnership or association may barter, sell, exchange, furnish or give away any included drug except on the original written order or prescription of a lawfully authorized practitioner of medicine, osteopathy, dentistry or veterinary medicine, or, without such order or prescription, unless the pharmacist keeps a record of the sale as described under section 4 of this analysis.

(c) The restrictions as to sales do not apply to supplies and sales at wholesale by jobbers, wholesalers and manufacturers to legally licensed retail druggists or qualified physicians or to each other, nor to the sale at retail by retail druggists or regular practitioners of medicine, dentistry or veterinary medicine, nor to sales made to manufacturers of proprietary or pharmaceutical preparations for use in the manufacture of such preparations, nor to sales to hospitals, colleges, or scientific or public institutions.

A prescription may not be refilled except on the written order of the original prescriber for each and every subsequent compounding or dispensing and no copy or duplicate of such order or prescription may be made or delivered to any person.

4. Records: (a) As to prescriptions and orders, the law provides that they must be "permanently retained on file" by the person or firm dispensing or compounding and must always be open to inspection by the prescriber or by an authorized officer of the law. (b) As to drugs dispensed without a written order or prescription, the law provides that the pharmacist or "legally licensed dispenser of retail drugs" shall keep a written record of sales. The record of each sale must be signed by the purchaser and must contain a true statement showing (1) name, age and address of purchaser, (2) character of drug and quantity purchased, and (3) name and address of parent, guardian or nearest of kin of purchaser. A complete copy of this record must be filed with the county clerk on or before January 1 of each year and the county clerk must within ninety days of the receipt of such copy certify an abstract of it to the commissioner of public health. The commissioner is required to examine all such records and to make "a summary report thereon to the Fifteenth Session of the Legislature."

5. Labeling Requirements: The law imposes no requirements with respect to the labeling of containers of any included drug.

Oregon

1. Citation: Laws of Oregon, 1935, Ch. 203.

2. Drugs Included: "Amytal, luminal, veronal, barbital, acid diethylbarbituric, or any of its salts, derivatives, or compounds of the foregoing substance, or any preparation or compound containing any of the foregoing substance, or its salts, derivatives or compounds, or any registered, trademarked or copyrighted preparation or compound registered in the U. S. Patent Office containing more than four grains to the avoirdupois or fluid ounce of the above substance."

3. Limitations on Sales: No person, firm or corporation may sell, give away, barter, exchange or distribute any of the included drugs except on the written order or prescription of a physician and surgeon, dentist or veterinary surgeon duly licensed to practice in Oregon. The law does not apply to the sale at wholesale of any of the included drugs by drug jobbers, drug wholesalers and drug manufacturers, to pharmacies, or to physicians, dentists or veterinarians, nor to each other, nor to the sale at retail in pharmacies by pharmacists to each other or to physicians and surgeons, dentists or veterinary surgeons licensed to practice in the state. A prescription for phenobarbital or any preparation, mixture or compound of phenobarbital may be refilled. Prescriptions for other included drugs may not be refilled without the written order of the prescriber.

4. Records: A prescription or order shall be preserved for at least three years from the date of filing and must at all times be open to inspection by duly authorized officers of the law.

5. Labeling Requirements: The law contains no requirements with respect to labeling.

Pennsylvania

1. Citation: Laws of Pennsylvania, 1935, Act No. 407.

2. Drugs Included: The law covers "hypnotic drugs" and "other hypnotic drug or analgesic drug, or body weight reducing drug." The term "hypnotic drug" is defined to mean "drugs, known as barbital and the salts of barbituric acid, also known as malonylurea, or any derivative or compounds, or any preparations or mixtures thereof, possessing hypnotic properties or effects." The term "other hypnotic drug, or analgesic drug, or body weight reducing drug" is defined to mean "sulphonethylmethane (Trional), or sulphonmethane (Sulphonal), or diethylsulphon diethylmethane (Tetronal), or bromdiethyl acetylcarbamide (carbromal), by whatever name they may be known; or paraldehyde, or any derivatives or compounds or preparations or mixtures thereof, possessing hypnotic properties or effects; and chloral or chloralhydrate or chlorbutanol, or any compounds or mixtures thereof possessing hypnotic properties or effects; or phenylcinchoninic acid (cinchophen), an analgesic anti-rheumatic drug, or any derivative or compound including atophan and atquinol or dinitrophenol, a metabolic accelerator body-weight reduction drug, or any di-

tro compounds including dinitrophenol sodium, and dinitroresol sodium, when the drugs herein defined or any derivatives or compounds or mixtures or preparations thereof." [This sentence is incomplete but it is quoted verbatim from the official laws of Pennsylvania.]

3. Limitations on Sales: No included drug may be sold at retail or dispensed to any person except on the written prescription of a duly licensed physician, dentist or veterinarian. This prescription does not apply to a duly licensed physician, dentist or veterinarian. The law contains no restriction with respect to the refillability of prescriptions.

4. Records: A physician, dentist and veterinarian must keep a record of the amount of included drugs purchased and a dispensing record showing the date, name of, the quantity of the drugs dispensed, and the name and address of the patient.

5. Labeling Requirements: (a) A physician, dentist or veterinarian must affix to the container of a drug sold or dispensed a label bearing the name and address of the dispenser, the date dispensed, the name and address of the patient, and the directions for the use of the drug by the patient. (b) A pharmacist must affix to the container of an included drug sold on prescription a label bearing the name and address of the pharmacist, the date compounded, and the consecutive number of the prescription under which it is recorded in his prescription files, together with the name of the physician, dentist or veterinarian prescribing it. (c) No manufacturer, pharmacist, jobber, dealer in drugs or any other person may sell or have in his possession any included drug unless the container bears a label stating conspicuously the specific name of the drug and the proportion or amount thereof, provided such label is not necessary when the drug is dispensed by a pharmacist on a prescription, or dispensed by a physician, dentist or veterinarian, and the container is labeled in the manner described.

Rhode Island

1. Citation: Public Laws of Rhode Island, 1937, Ch. 2543.

2. Drugs Included: Barbital, defined to mean "the salts of barbituric acid, also known as malonylurea, or any derivative or compounds or any preparations or mixtures thereof possessing hypnotic properties or effects." The law also includes "other hypnotic or somnifacient drug," defined to mean "sulphonethylmethane (trional) or sulphonmethane (sulphonal) or diethylsulphon diethylmethane (tetronal) or carbromal, by whatever name they may be known, or paraldehyde or any derivatives or compounds or preparations or mixtures thereof possessing hypnotic properties or effects, and chloral or chloral hydrate or chlorbutanol or any compounds or mixtures thereof possessing hypnotic properties or effects." The law applies to the foregoing drugs only when they are to be used internally, and specifically is excluded any compound or mixture or preparation that is intended to be used as a spray or a gargle or a liniment or in any other way for external application, provided that such compound mixture or preparation contains, in addition to the content of any of the included drugs, some other drug or drugs conferring on it medicinal qualities other than those possessed by the included drugs alone, provided such compounds or mixtures or preparations are sold in good faith.

3. Limitations on Sales: The included drugs may not be sold at retail or dispensed to any person except on the written prescription of a duly licensed physician, dentist or veterinarian. The prescription does not apply to a duly licensed physician, dentist or veterinarian when in his judgment it is advisable to dispense any of the drugs to a patient under his immediate supervision. The law contains no restriction with respect to the refillability of prescriptions.

4. Records: The law does not require that records be kept of sales.

5. Labeling Requirements: A label must be placed on the container of an included drug dispensed on prescription showing the name of the drug and the name and address of the seller. Manufacturers, wholesalers, jobbers, pharmacists and other dealers in drugs may not have in their possession any of the included drugs unless the container bears a label showing the specific name of the drug and the amount thereof,

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except that such label is not necessary when the drug is dispensed by a pharmacist on a prescription and the container is labeled as indicated in the preceding sentence.

South Carolina

South Carolina, 1939, Governor's Act

1. Citation: Laws of South Carolina, 1939, Governor's Act No. 514.
2. Drugs Included: The law embraces generally "that general class of synthetic drugs commonly known as barbiturates or their compounds." The law provides, however, that compounds containing not more than one fourth of the "standard dose" of a barbituric acid preparation which in combination with active medicinal ingredient or ingredients, the activity of which will preclude the use of the compound to obtain the full effect of the barbituric acid preparation shall be exempt from the provisions of this act. A "standard dose" is defined to be "such as is listed in the 'Pharmacopoeia,' and, if not listed in the 'Pharmacopoeia,' then as listed in the book 'New and Nonofficial Remedies,' and if not listed in either the 'Pharmacopoeia' or the 'New and Nonofficial Remedies,' then a standard dose shall be the average dose recommended by the manufacturer of the compound."

3. Limitations on Sales: No person, firm or corporation may sell, barter, exchange or give away any of the included drugs except on the written prescription of a licensed physician, dentist or veterinarian. The law is inapplicable to the sale, barter, exchange or giving away of any of the included drugs to retail or wholesale druggists, licensed physicians, licensed dentists and licensed veterinarians, "without such written prescription." The law provides further that it is not to be construed to prohibit or limit licensed physicians, licensed dentists and licensed veterinarians from dispensing any of the included drugs in the regular course of their practice, provided "upon any such barbiturate or barbiturate compound being dispensed by a licensed physician, licensed dentist, or licensed veterinarian, so much of such barbiturate or barbiturate compound not to be consumed in the presence of such person so dispensing same shall be placed in a container in the manner as provided hereinabove." The law does not indicate whether or not a prescription may be refilled.

4. Records: Every person, firm or corporation selling, bartering, exchanging or giving away any of the included drugs on a written prescription must retain the prescription for a period of three years from the date of receiving it and must exhibit it to the state board of health, or any officer or employee thereof, on demand. Retail and wholesale druggists are required to submit to the state board of health at least once every twelve months a sworn statement showing the amount of included drugs received and disposed of by them during "some specified time," and such other information as the board may require.

5. Labeling Requirements: Every person dispensing an included drug on a prescription must place the drug "in a container with the name and address of the person prescribing same and the name and address of the person, firm or corporation dispensing same plainly printed or written thereon." A physician, dentist or veterinarian who dispenses to a patient any included drug to be consumed out of the presence of the physician, dentist or veterinarian must place the drug in a container as described in the preceding sentence.

Tennessee

Tennessee, 1939, Ch. 164.

1. Citation: Laws of Tennessee, 1939, Ch. 164.
2. Drugs Included: The law embraces "barbital," which is defined to mean "the salts of barbituric acid, also known as malonylurea, or any derivative or compounds or any preparations or mixtures thereof possessing hypnotic properties or effects."
3. Limitations on Sales: The law provides that no person, firm or corporation may sell, barter or give away any included drug except on the written prescription of a duly licensed physician, dentist or veterinarian. This prescription does not apply to sales by legitimate wholesale druggists to registered pharmacists and the sale by registered pharmacists to duly

licensed physicians, dentists and veterinarians. The law does not indicate whether or not a written prescription may be refilled.

4. Records: The law does not require that any record be made of sales.

5. Labeling Requirements: No provision is contained in the law with respect to the labeling of containers of included drugs.

Vermont

Vermont, 1939, No. 128.

1. Citation: Laws of Vermont, 1939, No. 128.
2. Drugs Included: The 1939 law amended the state narcotic act by including within its provisions "cinchophen and compounds, amidopyrin, and compounds, such barbiturates as veronal, barbital, allonal, luminal, ipral and medinal or any other barbituric acid derivatives now available or such as may later be manufactured." The law provides that its provisions do not apply to liniments, ointments or other preparations which are prepared for external use only.

3. Limitations on Sales: The law provides that no person shall sell, furnish, give away or deliver any of the included drugs except on a prescription or order written by a licensed physician, dentist or veterinarian. It is expressly provided that the law shall not be construed to prevent a licensed physician, dentist or veterinarian from prescribing, administering or dispensing any drug that may be indicated for any patient under his care, if done in good faith. A veterinarian may not prescribe any of these drugs for the use of a human being. A prescription for any of the included drugs may not be refilled except on order of the prescriber.

4. Records: A prescription must show the date on which it is filled or refilled and must be retained on file by the druggist filling it for at least two years. The prescription may not be copied except for purpose of record by the druggist filling it and must at all times be open to inspection by members of the board of health, board of pharmacy, their authorized agents, and by the police authorities of the state.

5. Labeling Requirements: The law contains no provision with respect to the labeling of containers of any of the drugs named in section 2 of this analysis.

Virginia

Virginia, 1932, Ch. 377.

1. Citation: Laws of Virginia, 1932, Ch. 377.
2. Drugs Included: The law includes hypnotic drugs, defined to mean "diethyl barbituric acid (barbital), by whatsoever trade name or designation; or any compound, preparation, mixture or solution thereof; or any salt or derivative thereof or of barbituric acid possessing hypnotic properties or effects."

3. Limitations on Sales: No person may sell or give away any included drug to a consumer except on a prescription of a doctor of medicine, doctor of dental surgery or doctor of veterinary surgery, lawfully practicing his profession. The law does not apply to sales to or the dispensing of such drugs by doctors of medicine, doctors of dental surgery or doctors of veterinary surgery, or sales to registered retail or wholesale pharmacists or hospitals, and other institutions for the treatment of defective, afflicted, sick and injured persons. A prescription "may be refilled."

4. Records: The law contains no provision with respect to the keeping of records of sales.

5. Labeling Requirements: The law contains none.

Washington

Washington, 1939, Ch. 6 and Ch. 29.

1. Citation: Laws of Washington, 1939, Ch. 6 and Ch. 29.
2. Drugs Included: The law embraces "amytal, luminal, veronal, barbital, acid diethylbarbituric, or any of their salts, derivatives, or compounds of the foregoing substances, or any preparation or compound containing any of the foregoing substances, or their salts, derivatives or compounds, or any registered, trade-marked or copyrighted preparation or compound registered in the U. S. patent office containing more than one grain to the avoirdupois or fluid ounce of the above substances," and "para-amino-benzene sulfonamide, sulfanilamid, sulfamidyl, prontosil, prontosil, neoprontosil, edimalin, sulfonamid or any salts, derivatives or compounds thereof or any registered, trade marked or copyrighted preparation or compounds registered in the U. S. patent office containing said substances."

3. Limitations on Sales: No person may sell, give away, barter, exchange or distribute any included drug except on the written order or prescription of a physician, surgeon, dentist or veterinary surgeon duly licensed to practice in Washington. The law does not apply to sales at wholesale by drug manufacturers, drug jobbers, and drug wholesalers to "pharmacies or to physicians, dentists, or veterinary surgeons, nor to each other, nor to the sale at retail in pharmacies by pharmacists to each other or to physicians, surgeons, dentists, veterinary surgeons duly licensed to practice in this state." A prescription may not be refilled except on the written order of the prescriber.

4. Records: The law does not require records to be kept of sales.

5. Labeling Requirements: The law contains none.

West Virginia

1. Citation: Laws of West Virginia, 1935, Ch. 46.

2. Drugs Included: The provisions here abstracted form a part of the state uniform narcotic act. They embrace "Chloral hydrate, or any compound, manufacture, mixture, or preparation thereof containing over two grains to the ounce," and "malonylurea (barbituric acid), as such, or diethyl-malonylurea,

as such, or any sodium or potassium salt of either of them, under whatever name they may be designated, or any sodium or potassium salt of any chemical derivative of malonylurea, or diethyl-malonylurea, under whatever name they may be designated, that may be classed as a dangerous hypnotic or narcotic as defined by regulations of the state board of pharmacy."

3. Limitations on Sales: No person may sell or dispense at retail any included drug except on the written prescription of a physician, dentist or veterinarian. The law does not prevent the "supplying" of the drugs by a registered pharmacist to physicians, dentists, veterinarians and accredited hospitals for medicinal use. The law provides that a prescription for "narcotic drugs" may not be refilled; but since the law defines narcotic drugs to mean "coca leaves and opium," this proscription apparently does not apply to the drugs described in section 2 of this analysis.

4. Records: The law requires that certain records must be kept of sales of narcotic drugs but it is questionable whether this requirement is applicable to the sales of drugs described in section 2 of this analysis.

5. Labeling Requirements: The labeling requirements contained in the law relate to narcotic drugs.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—A subcommittee of the House Committee on the Judiciary will hold a hearing, May 22, on H. R. 8963, the bill introduced by Representative Tolán, California, to give chiropractors the right to treat injured federal employees entitled to the benefits of the United States Employees' Compensation Act. Representative Francis E. Walter of Pennsylvania is the chairman of the subcommittee. The Senate Committee on Education and Labor scheduled a hearing on S. 3461 for May 13. This bill proposes to lodge with the United States Department of Labor supervision over industrial health by making available federal grants to states that have developed plans acceptable to the Secretary of Labor for the control and prevention of industrial conditions hazardous to the health of employees. On May 6 and May 10 the Senate Committee on Education and Labor conducted hearings on S. 3914, a bill introduced by Senator Pepper, Florida, to impose additional duties on the United States Public Health Service in connection with investigation and control of pneumonia, influenza and the common cold. S. 3633 has passed the Senate and House, providing that a candidate for appointment in the Dental Corps of the Army, to be eligible, must be a graduate of a recognized dental college, having been engaged in the practice of his profession for at least two years subsequent to graduation or, in lieu thereof, must have after such graduation satisfactorily completed a dental internship of not less than one year in a hospital or dispensary. S. 3654 has passed the House and Senate, increasing the authorized maximum number of enlisted men of the Medical Department of the Regular Army. H. R. 9236 has passed the House, proposing an additional appropriation of \$75,000 for the preparation of "talking books" for the blind.

Bills Introduced.—H. R. 9537, introduced by Representative White, Ohio, proposes to amend the Fair Labor Standards Act of 1938 so as to exclude from its provisions relating to minimum wages and maximum hours students in recognized professional schools being given professional or clinical experience. S. 3924, introduced by Senator Wagner, New York, proposes to amend the Social Security Act so as to provide insurance benefits for wage earners permanently and totally disabled for causes not arising out of their employment. A copy of this bill is not yet available for analysis, but in submitting it to the Senate Senator Wagner said, in part: "Humanity and economy require that the disabled beneficiaries be restored to health in all cases where medical and surgical skill have progressed far enough to offer a remedy. The bill anticipates the need for rehabilitation, where such services may aid in restoring the beneficiary's working ability. The funds to be expended for the purpose of rehabilitation are carefully limited and could not be utilized for the construction of hospitals or other institutions." The bill was referred to the Senate Committee on Finance.

DISTRICT OF COLUMBIA

Change in Status.—H. R. 9525 has been reported to the House, with amendments, proposing to reorganize the government of the District of Columbia. The House Committee on the District of Columbia proposed no amendment to the bill with respect to the appointment of a health officer for the district. The committee did strike out the requirement that the chief medical examiner who is to direct the office of medical examiner of the District must be a doctor of medicine and in lieu thereof proposed that that official must be a "physician."

WOMAN'S AUXILIARY

California

Rabbi Edgar F. Magnin discussed "The Life of Alfred Adler," by Philip Bottomo, before the auxiliary to the Los Angeles County Medical Association, January 23. More than 100 members were present. After the meeting the members viewed the Physicians' Art Exhibit.

The auxiliary to the Marin County Medical Society held a dinner meeting in Fairfax, January 25. Dr. Walter Brown, professor of public health at Stanford University, was speaker and Mrs. Brown and Mrs. Edmund Morrissey, president of the auxiliary to the San Francisco County Medical Society, were guests.

Indiana

Eleven auxiliaries to county medical societies were organized in Indiana during February, as follows: Grant, Marshall, Adams, Tippecanoe, Cass, Howard, Lake, Noble, LaGrange, Steuben and De Kalb.

The auxiliary to the Marion County Medical Society had an annual public relations tea at Indiana University Center, Indianapolis, March 4. Presidents of women's clubs of the county were special guests. Dr. Verne K. Harvey, director of the state board of health, outlined the various departments of the board and Dr. Herman G. Morgan, secretary of the city board of health, discussed "Modern Trends of Medicine."

ORGANIZATION SECTION

The January meeting of the auxiliary to the Vigo County Medical Society was held in Terre Haute with fifty-seven in attendance. Miss Charlotte Lee, dramatic instructor at St. Mary's of the Woods School, read the play "No Time for Comedy." The auxiliary finances the occupational therapy work at St. Anthony's Hospital and at Union Hospital.

Iowa

The auxiliary to the Pottawattamie County Medical Society entertained the members of the society at a dinner at the home of Dr. and Mrs. Grant Augustine, Council Bluffs, February 26. Forty-two persons were in attendance and Mrs. A. A. Robertson was named president.

Louisiana

Dr. G. C. Anderson, president of the Orleans Parish Medical Society, spoke on the "Periodic Health Examination" at a meeting of the auxiliary to the Orleans Parish Medical Society, New Orleans, February 14.
Dr. Charles B. Odom, New Orleans, spoke on the Wagner Health Bill, February 13, at a public meeting in Opelousas, sponsored by the auxiliary to the St. Landry Parish Medical Society.

Michigan

At the February meeting of the auxiliary to the Genesee County Medical Society in Flint Mrs. Arthur Kretschmar spoke on "Six Years in Africa."
Dr. L. Fernald Foster discussed the Wagner Health Bill at the January meeting of the auxiliary to the Jackson County Medical Society.
The auxiliary to the Kalamazoo County Medical Society met January 16. "My Days of Strength," by Dr. Anne Walter Fearn, who spent forty-four years in China, was reviewed by Mrs. Walter den Bleyker.
The Monroe County Medical Society and its Auxiliary held a joint meeting in Monroe in February. Mr. Lee A. White of the Detroit News talked on "What Can We Believe?"

Minnesota

The midwinter meeting of the board of directors of the auxiliary to the Minnesota State Medical Association was held in Minneapolis January 23. Dr. E. L. Meyer showed motion pictures of South America and Dr. Bertram S. Adams, president of the Minnesota State Medical Association, was guest speaker.

New York

Mrs. Albert Vander Veer II, chairman of legislation of the auxiliary to the Medical Society of the State of New York, presented the content of bills affecting medical practice at the February meeting of the auxiliary to the Medical Society of Columbia County at the Hudson City Hospital in Hudson.
The auxiliary to the Cayuga County Medical Society is assisting in raising funds for the Physicians' Home and also assisting the medical society in raising funds to purchase cases for the Medical Historical Exhibit to be placed in the Cayuga Museum of History and Art.

South Carolina

The auxiliary to the Columbia Medical Society met in Columbia January 2, with fifty members in attendance. Dr. Roger Doughty spoke on socialized medicine.
The auxiliary to the Laurens County Medical Society met in Laurens February 26. Mrs. Mark S. Ellis spoke on "Emotional Development."
The auxiliary to the Oconee County Medical Society met in Seneca February 12. Mrs. William B. Furman, president of the auxiliary to the South Carolina Medical Association, was speaker and also read a paper entitled "Medicine Through the Ages."

Tennessee

The auxiliary to the Knox County Medical Society met in Knoxville March 6. Mrs. H. E. Christenberry reviewed the book "Centennial History of Tennessee State Medical Association."

Utah

The auxiliary to the Salt Lake County Medical Society met at the home of Mrs. John Z. Brown, Salt Lake City, January 15. "The Doctor's Wife," written by Dr. Rock Sleyster, President of the American Medical Association, was read.

Virginia

At the January meeting of the auxiliary to the Petersburg Medical Society, Mrs. Wright Clarkson reviewed "My Days of Strength," by Dr. Anne W. Fearn.
Dr. Walter B. Martin spoke on socialized medicine at a meeting of the auxiliary to the Norfolk County Medical Society in Norfolk January 30.
The auxiliary to the Mid-Tidewater Medical Society met in West Point January 24. An article, "Dollar-a-Month Doctor," by Lowell Lawrance, published in *Hygeia*, was read.

Washington

Dr. Joseph Low spoke on the Wagner Health Bill before the auxiliary to the Yakima County Medical Society January 8.
Dr. Walter Camron spoke on this bill before the auxiliary to the Pierce County Medical Society in Tacoma December 14.
Dr. Helen Gibson Hogue, secretary of the Washington State Mental Hygiene Society, spoke on "Psychological Preparation for Living" before the auxiliary in Tacoma January 11.
The auxiliary to the Washington State Medical Association held its midyear board meeting in Tacoma February 16. Addresses were given by Drs. Warren B. Penney, president of the Washington State Medical Association; H. H. Skinner, chairman of Maternal and Child Welfare Committee, and A. J. Roth, member of the Health Education Survey of the State Planning Council.
The auxiliary to the Kitsap County Medical Society held its January meeting in Bremerton. State Senator Lulu Haddon, who is a member of the auxiliary, discussed the Wagner Health Bill. At a meeting of the auxiliary on March 15, Dr. Donald Trueblood, of Seattle, spoke on cancer.
The auxiliary to the Walla Walla Valley Medical Society met February 18. Rev. Joseph Settle, rector of St. Paul's Church, reviewed "As We Are," by E. F. Benson. At a meeting March 19, Richard Clodius, radio announcer, gave a talk on the history of broadcasting.
At a meeting of the auxiliary to the Grays Harbor County Medical Society in Hoquiam, February 21, Miss Elaine Hesla discussed "Wagnerian Opera."

The auxiliary to the King County Medical Society held its annual public relations dinner at the Women's University Club in Seattle, February 20. Several hundred guests attended. A discussion of medical affairs followed and questions were answered by members of the medical society.
"The Nation's Health," an editorial published in the February 1940 issue of *Hygeia*, was read and discussed at a meeting of the auxiliary to the Clark County Medical Society held at the home of Mrs. Charles Otto, near Vancouver, March 5.

The auxiliary to the Spokane County Medical Society met in Spokane February 9. Rev. Father James Linden, S.J., Regent of the School of Law of Gonzaga University of Spokane, spoke on the attitudes of Americans toward war, the third term and socialized medicine.

At a meeting of the auxiliary to the Spokane County Medical Society, March 8, Dr. Elizabeth White discussed the work of the Young Women's Christian Association. "At Miss Susie Slagle's," a novel by Augusta Tucker dealing with the lives of medical students in Baltimore, was reviewed by Mrs. Wesley H. DuBois.

West Virginia

The auxiliary to the Fayette County Medical Society met in Montgomery January 16. The address by Dr. Nathan B. Van Etten, delivered at White Sulphur Springs last July, was reviewed and discussed.

Mrs. J. Frank William Jr. spoke on "Medicine's Gift to Mankind" at a meeting of the auxiliary to the Harrison County Medical Society in Clarksburg February 1.
Dr. J. W. Davis spoke on "Community Interest in Health" at a meeting of the auxiliary to the Marion County Medical Society in Fairmont January 30.

Dr. Athey R. Lutz discussed "What Is Being Done for Crippled Children" at a meeting of the auxiliary to the Parkersburg Academy of Medicine February 14.
At a meeting of the auxiliary to the Raleigh County Medical Society in Beckley, January 29, Dr. Norman G. Patterson spoke on "Medicine in China."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

Refresher Course on Pediatrics.—The third series of refresher courses sponsored by the committee on maternal and child welfare of the state medical society and the state board of health will be conducted during a six week period beginning May 20. Lectures on pediatric subjects will be given in Fort Smith, Prescott, McGehee, Searcy and Jonesboro. Dr. Jean Valjean Cooke, professor of obstetrics, Washington University School of Medicine, St. Louis, will be the speaker.

CALIFORNIA

Package Library.—The regents of the University of California have authorized an increase in the budget of the university's Medical Center Library in San Francisco to maintain a circulating periodical service for rural physicians throughout the state. The costs of this service will be for mailing only.

Physicians' Art Exhibit at Treasure Island.—The American Physicians' Art Association will conduct a free art exhibit in the Hall of Science Building, Treasure Island, San Francisco, from July 1 until the fair closes. The management of the fair has made available 2,976 square feet of floor space without charge to the association.

Society News.—Dr. Rudolf Schindler, Chicago, addressed a special meeting of the San Francisco County Medical Society, San Francisco, May 1, on "Gastric Carcinoma—Its Early Diagnosis and Prognosis."—The California State Dental Association was addressed at its annual meeting in Oakland, May 14, by Dr. Edward C. Rosenow, Rochester, Minn., on "The Prevention and Elimination of Infections In and About Teeth and Thereby of Systemic Disease." Dr. Rosenow presented a "Review of Findings of the Los Angeles Poliomyelitis Epidemics of 1934 and 1937" before the Hollywood Academy of Medicine, May 9.

ILLINOIS

New Division of Cancer Control.—In accordance with recently enacted laws, a division of cancer control has been established in the state department of health with offices at 1800 West Fillmore Street, Chicago. Dr. Raymond V. Brokaw, New York, has been appointed chief of the division and Dr. Perry J. Melnick, Chicago, pathologist to supervise a diagnostic service. The total amount of funds available under the two laws is about \$18,000 a year. The work will be largely educational, emphasizing early diagnosis and early scientific treatment of cancer. Laboratory diagnostic service will be provided to the extent of resources. Last year in Illinois 11,186 fatalities were attributed to cancer. The appointment of an advisory board to the division of cancer control has also been announced. Present members of the board include Drs. David J. Davis, dean of the University of Illinois College of Medicine, Chicago, chairman; James Scott Templeton, Pinckneyville; Roswell T. Pettit, Ottawa; William M. Coolcy, Peoria, and Edwin F. Hirsch, Chicago, secretary.

Chicago

The Capps Prize.—The Institute of Medicine of Chicago announces that the 1939 award of the Joseph A. Capps Prize has been divided between Dr. Charles Fisher for his investigation on "Diabetes Insipidus and the Neurohormonal Control of Water Balance: A Contribution to the Structure and Function of the Hypothalamicohypophyseal System," and Dr. Bernard G. Sarnat for his work on "The Teeth as Permanent Chronologic Recorders of Systemic Disease: A Clinical and Experimental Study of Enamel Hypoplasia."

The Bernard Fantus Clinics.—The new outpatient clinics of the Cook County Hospital group were dedicated, April 19, to the memory of the late Dr. Bernard M. Fantus, director of therapeutics at the county hospital and creator of the "blood bank" for quick transfusions, newspapers reported. All clinics of the hospital group except that for the obstetric ward, which will remain in its present quarters, will be housed in one

building to bear the name of Dr. Fantus. The function of the new clinics will be to give follow-up treatment to county hospital patients.

INDIANA

District Meetings.—The First District Medical Society will be addressed, May 23, in Evansville by Dr. Homer G. Hamer, Indianapolis, on "Urinary Tract Infection and the General Practitioner."—The Second District Medical Society will be addressed in Sullivan, June 6, by Drs. Goethe Link and Ezra Vernon Hahn, Indianapolis, on "Surgical Management of Complicated Thyroid Conditions" and "Treatment of Brain Injury and Skull Fracture" respectively.—Dr. Winship C. Callaghan, Greensburg, among others, discussed undulant fever before the Fourth District Medical Society in Seymour, May 8.—Included among the speakers before the Sixth District Medical Society in Brookville, May 15, was Dr. Esie Asbury, Cincinnati, on osteomyelitis.—The Ninth District Medical Society was addressed in Attica, May 16, by Drs. Frank Gregor and Robert M. Moore, Indianapolis, on "Drip Treatment of Syphilis" and "Significance of Chest Pain and Its Relation to Heart Disease."—Included among the speakers before the Tenth District Medical Society in Hammond, May 23, will be Drs. Lewis J. Pollock, Chicago, on "Neurological Examination of a Patient" and Morris Fishbein, Chicago, Editor of THE JOURNAL, "American Medicine and the National Government."—Among others, Dr. Samuel M. Feinberg, Chicago, addressed the Eleventh District Medical Society in Huntington, May 15, on "Allergic Diseases of the Summer."

IOWA

Annual Renewal Fees Due Before June 1.—All licenses to practice medicine and surgery in Iowa expire annually on June 30. To renew such a license a licensee must make a written application to the state department of health before June 1, enclosing the renewal fee of \$1. If a license expires by reason of the licensee's failure to renew it, it can be reinstated without reexamination only on the recommendation of the state department of health and the payment of the overdue fees.

Society News.—Dr. Paul Titus, Pittsburgh, discussed "Recent Advances in Obstetrics" before the Linn County Medical Society, Cedar Rapids, recently.—Dr. Robert L. Fenton, Centerville, discussed "Modern Treatment of Hemorrhoids and Associated Conditions" before the Lucas County Medical Society recently.—The Des Moines Academy of Medicine and Polk County Medical Society were addressed in Des Moines recently by Dr. Joseph F. Biehn, North Chicago, Ill., on "Therapeutic Implications of Medical Research."—Dr. Thomas G. Orr, Kansas City, Mo., addressed the Boone-Story county medical societies in Ames, March 28, on "Intestinal Obstruction." The society was addressed, April 18, by Dr. Robert D. Schrock, Omaha, on "Fractures of the Elbow."—The Marshall County Medical Society was addressed, April 2, by Dr. Stuart C. Cullen, Iowa City, on "Local and General Anesthesia in Obstetrics and Major Surgery."

MAINE

Society News.—The Kennebec County Medical Association was addressed recently by Dr. George R. Brow, Montreal, Que., on "Cardiac Emergencies and Their Treatment."—At a meeting of the Portland Medical Club recently Dr. Elton R. Blaisdell discussed "Treatment of Massive Hemorrhage in Gastric and Duodenal Lesions" and Dr. Jack Spencer, "X-Ray Studies of Gastric and Duodenal Lesions."

MICHIGAN

Annual Concert of Glee Club.—The sixth annual concert of the Glee Club of the Wayne County Medical Society was presented at the Detroit Institute of Art, April 29. Marcus Kellerman is director of the club. At the concert the accompanists were Dr. Henry S. Brown on the organ and Dr. Eugene M. Savignac on the piano.

Changes in Health Officers.—Dr. Eldred V. Thiehoff, director of district health department number 7, with headquarters at Gladwin, has been appointed assistant director of the bureau of local health services in the state health department, effective April 1.—Dr. Wallace M. Chapman, Harrodsburg, Ky., has been appointed health officer of district health department number 3, including the counties of Antrim, Charlevoix, Emmet and Otsego, succeeding Dr. Carlton Dean of Lansing.

MEDICAL NEWS

MINNESOTA

Society News.—Dr. Woodbridge E. Morris, New York, discussed "Birth Control in the Public Health Program" before the Hennepin County Medical Society, May 8, in Minneapolis. —Dr. John A. Lepak, St. Paul, addressed the Minnesota Academy of Medicine, May 8, on "Eosinophilic Leukemia or Myelogenous Leukemia with Eosinophilic Hyperleukocytosis. Case Report with a Discussion of the Medical Literature."

Continuation Courses.—The Center for Continuation Study at the University of Minnesota is conducting a group of medical and hospital continuation courses, the first of which opened, April 1-6, on venereal disease. Others are:

Obstetrics, April 29-May 1.
Health Problems of College Students, May 2-4.
Electrocardiography, May 13-18.
Diseases of Infancy and Childhood, May 20-25.
Hospital, Medical and Institutional Library Service, May 22-24.
Gynecologic Tumors, June 6-8.

A course in surgical pathology with special attention to tumors will be held June 17-July 26.

NEW JERSEY

Mass Meeting to Discuss Socialized Medicine.—The Bergen County Medical Society will sponsor a public mass meeting for discussion of "Socialized Medicine" at the Teaneck High School, June 7. The speakers will be Drs. Morris Fishbein, Chicago, Editor of THE JOURNAL, and Joseph H. Kler, New Brunswick.

Treasurer for Twenty-Eight Years.—Dr. Robert H. Rogers, Newark, was honored at a meeting of the Essex County Medical Society, Newark, March 14, in recognition of twenty-eight years of service as treasurer of the society. Dr. Rogers received resolutions of appreciation, a watch-charm key of honor and a purse as mementoes of the occasion.

Society News.—Dr. Louis Tuft, Philadelphia, addressed the Atlantic County Medical Society, Atlantic City, April 12, on "Methods of Diagnosis and Principles of Treatment in Allergic Diseases." —Dr. Stanford W. Mulholland, Philadelphia, spoke on "Pyelitis and the Problem of Renal Infections" at a meeting of the Cumberland County Medical Society at Bergamini, New York, April 9, on "Osteomyelitis" and "Fractures of the Neck of the Femur" respectively. —Dr. Foster Kennedy, New York, addressed the Hudson County Medical Society, Jersey City, April 2, on "A Critique of Present Trends in Medical Education." —Dr. Frank R. Ober, Boston, addressed the Academy of Medicine of Northern New Jersey, April 18, on "Lame Backs." Dr. Hayes E. Martin, New York, addressed the section on eye, ear, nose and throat, April 8, on "Diagnosis and Curability of Intra-Oral Cancer" and "Cancer of the Eyelid."

NEW YORK

Fifty Years a Practitioner.—Dr. John H. Pratt, Manchester, was honored at a testimonial dinner given by the Ontario County Medical Society in Canandaigua, April 9, in recognition of his fifty years of medical practice and of membership in the society. Dr. Terry M. Townsend, New York, resident of the Medical Society of the State of New York, made the principal address. Dr. Pratt graduated from Bellevue Hospital Medical College, New York, in 1890 and entered practice in Manchester the same year with his father, Dr. John Richmond Pratt, who completed fifty years of president of the county medical society. Dr. Pratt is the grandson of Dr. Franklin B. Hahn, who practiced in Canandaigua from 1820 to 1850 and was secretary of the society, Dr. Pratt according to the present secretary of the society, Dr. Pratt is the ninth physician to have completed fifty consecutive years as a member.

Society News.—Dr. James B. Collip, Montreal, Que., Canada, addressed the Medical Society of the County of Westchester, White Plains, April 16, on "Recent Work in Pituitary Physiology." —Dr. Charles A. Weymuller, Brooklyn, addressed the Onondaga County Medical Society, Syracuse, April 2, on "Recent Advances in Pediatrics." —Dr. Alexander S. MacMillan, Boston, addressed a joint meeting of the Syracuse Academy of Medicine and Syracuse Eye, Ear, Nose and Throat Club, April 16, on "X-Ray Interpretation

of the Respiratory Tract, the Mastoids and the Skull." —Dr. A. Benson Cannon, New York, addressed the Dutchess County Medical Society in Poughkeepsie, April 10, on "Present Day Viewpoint on Skin Diseases" and Dr. Paul W. Harrison, Muscat, Arabia, "Medical and Surgical Practice in Arabia." —Dr. Nicholson J. Eastman, Baltimore, discussed "Obstetric Hemorrhage" before the Rochester Academy of Medicine, April 3.

New York City

Eighth Harvey Lecture.—Rudolph J. Anderson, Ph.D., professor of chemistry, Yale University, New Haven, Conn., delivered the eighth Harvey Society Lecture of the season at the New York Academy of Medicine, May 16. His subject was "The Chemical Composition of the Lipoids of the Tubercle Bacillus."

Mickle Award to Columbia Anatomist.—Philip E. Smith, Ph.D., professor of anatomy at Columbia University College of Physicians and Surgeons, recently received the Charles Mickle Fellowship of the University of Toronto in recognition of his work on the pituitary gland, according to the New York Times. This fellowship is the annual income from an endowment fund of \$25,000 and is awarded to the scientist who, in the opinion of the council of the university, has done most during the preceding ten years to advance sound knowledge of a practical kind in medical art or science. Dr. Smith has taught anatomy at Cornell University, the University of California and Stanford University and has been professor at Columbia since 1927.

Courses at Post-Graduate School.—The New York Post-Graduate Medical School announces several courses planned to coordinate with the annual session of the American Medical Association in New York, June 10-14. An intensive course in "Clinical Interpretations of Laboratory Data" will be given under the direction of Dr. Maurice Bruger, June 3-7. A course on "Diseases of the Liver and Biliary Tract" will be presented June 3-8 under the direction of Drs. Rupert Franklin Carter, Carl H. Greene and John Russell Twiss. Following the convention a ten day symposium in medicine will be offered under Dr. Walter G. Lough. In addition the school announces a seminar in pediatrics for the month of July under Dr. Adolph G. G. DeSanctis. Information may be obtained from the Director, 309 East Twentieth Street.

NORTH CAROLINA

District Meetings on Cancer.—The Eighth District Medical Society held its spring meeting in Greensboro, April 11, with Dr. John Shelton Horsley, Richmond, Va., as the guest speaker on "Principles of Treatment and Handling of Cancer Patients." A symposium on early signs and symptoms of cancer was presented by Drs. Booker E. Rhudy and Russell O. Lyday, Greensboro; Arthur deT. Valk, Charles O. McLaney and Robert A. Moore, Winston-Salem; Harry L. Brockmann, High Point; Moir S. Martin, Mount Airy, and Wayne J. Benton, Greensboro. —At a meeting of the Ninth District Medical Society in Statesville, April 4, Dr. Milton Friedman, New York, was the guest speaker on "Benign and Malignant Tumors of the Breast." Other speakers were Drs. Thomas V. Goode, Statesville, on "Diagnosis of Cancer"; Angus Hinson, Statesville, on "Diagnosis and Treatment of Malignancy of the Cervix Uteri"; Joseph Rush Shull, Charlotte, "Irradiation of Metastatic Malignancy," and Coy C. Carpenter, Wake Forest, "Responsibility of the Clinician in the Pathologic Diagnosis of Tumors."

PENNSYLVANIA

Personal.—Dr. Ronald B. McIntosh has resigned as head of the Selinsgrove State Colony for Epileptics, it is reported. —Dr. Verne G. Burden, Philadelphia, has been appointed superintendent of the Eastern State Penitentiary to succeed Dr. Basil R. Beltran, resigned. —Dr. Amos W. Gottschall for the Insane, Embreeville, it is reported.

Society News.—Dr. Mark M. Bracken, Pittsburgh, addressed the Blair County Medical Society, Altoona, March 19, on "Blood Requirements in Transfusion." —Dr. Temple S. Fay, Philadelphia, discussed "Human Refrigeration" before the Delaware County Medical Society, Chester, April 11. —Dr. William M. Skipp, Youngstown, Ohio, addressed the Mercer County Medical Society, Grove City, April 10, on "Thyroid Diseases." —Dr. William Bates, Philadelphia, addressed the Dauphin County Medical Society, Harrisburg,

April 2, on "Parietal versus Visceral Pain and Tenderness."—Dr. James H. Rankin Jr., Woodville, addressed the Washington County Medical Society, Washington, April 10, on "Metrazol Treatment of Insanity, with Special Reference to Prevention of Fracture Complications."—Drs. Charles W. Mayo, Rochester, Minn., and Ralph Lynch, Pittsburgh, addressed the Cambria County Medical Society, Johnstown, April 11, on "Perineal Resection of Malignant Lesions of the Lower Sigmoid, Rectosigmoid and Rectum" and "Prothrombin Deficiency—Its Clinical Importance and Management" respectively. The guests also conducted clinics in the afternoon at the Conemaugh Valley Memorial Hospital.—Dr. Joseph T. Beardwood Jr., Philadelphia, addressed the Lebanon County Medical Society, Lebanon, April 9, on "New Aspects of Diabetes and Its Treatment."

Philadelphia

Courses for Graduate Physicians.—The Pennsylvania Hospital announces its 1940 postgraduate courses in internal medicine, June 3-21. A course in cardiology will be given June 3-7 and one on diseases of metabolism June 17-21. Other subjects will be gastro-enterology, hematology, diseases of the lungs and diseases of the kidneys. Information may be obtained from the Registrar of Summer Course, Pennsylvania Hospital, Eighth and Spruce streets, Philadelphia.

Dr. Bronk Goes to Cornell.—Detlev W. Bronk, Ph.D., Eldridge Reeves Johnson professor of biophysics and director of the Johnson Foundation for Medical Physics at the University of Pennsylvania School of Medicine, has been appointed head of a new department of physiology and biophysics at Cornell University Medical College, New York. Dr. Bronk took his doctor's degree at the University of Michigan in 1926 and served on the faculty at Michigan and Swarthmore College before coming to Pennsylvania in 1929. Recently he has also been vice dean for neurology and professor of neurology in the graduate school of medicine and director of the Institute of Neurology of the University of Pennsylvania. According to the *New York Times*, five other members of the staff at the University of Pennsylvania were also appointed to the new department at Cornell: Dr. H. Keffer Hartline, Arthur J. Rawson, M.E., John P. Hervey, M.S., Martin G. Larrabee, Ph.D., and Frank Brink Jr., M.S.

Pittsburgh

Mellon Lecture.—Philip A. Shaffer, Sc.D., professor of biologic chemistry and dean, Washington University School of Medicine, St. Louis, delivered the annual Mellon Lecture on May 9 at Mellon Institute. Dr. Shaffer's subject was "The Mode of Action of Sulfanilamide—Another Enigma of Chemotherapy." This lecture is sponsored by the Society for Biological Research at the University of Pittsburgh School of Medicine.

TEXAS

District Meeting.—The Eleventh District Medical Association met in Tyler, April 4, with the following program:

- Dr. Meyer Bodansky, Galveston, The Role of Vitamins in Clinical Medicine.
- Dr. Donovan C. Browne, New Orleans, Management of Peptic Ulcer Hemorrhage.
- Dr. Willis C. Campbell, Memphis, Tenn., Treatment of Compound Fractures.
- Dr. Thomas Leon Howard, Denver, Hematuria.
- Dr. Albert O. Singleton, Galveston, Diaphragmatic Hernia.

Dr. Leopold H. Reeves, Fort Worth, president of the State Medical Association of Texas, spoke at a luncheon on "Organized Medicine."

WASHINGTON

Prize Awarded to Dr. Brien T. King.—The American Association for the Study of Goiter at its annual meeting in Rochester, Minn., April 15-17, awarded the Van Meter Prize of \$300 to Dr. Brien T. King, Seattle, for his essay on "A New and Function-Restoring Operation for Bilateral Abductor Cord Paralysis." Honorable mention was given to Dr. Irving M. Ariel, William Bale, Ph.D., Vincent F. Downing, B.S., Walter Mann, B.S., Harold C. Hodge, Ph.D., Dr. Stafford L. Warren and Stanley Van Voorhis, Ph.D., Rochester, N. Y. for an essay on "Preliminary Study of Variations in the Distribution of Radioactive Iodine in Normal Rabbits" and to Dr. Doran J. Stephens, Rochester, N. Y., for a paper on "Effects of the Thyrotropic Principle of the Anterior Pituitary on the Thyroid Gland of the Undernourished Guinea Pig."

GENERAL

Conference of Negro Tuberculosis Workers.—The second annual conference of Negro tuberculosis workers will be held at Howard University School of Medicine, Washington, D. C., May 27-28, under the auspices of the Tuberculosis Association of the District of Columbia and the National Tuberculosis Association.

Fellowships in Cancer.—The Finney-Howell Research Foundation, Baltimore, has announced Jan. 1, 1941, as the closing date for filing applications for 1941 awards in cancer research. Announcement was also made of a grant of \$2,000 to Dr. George O. Gey to carry on his work in cancer at Johns Hopkins University School of Medicine. In addition, seven fellowships for investigation into the cause or causes and the treatment of cancer were renewed by the foundation at its annual meeting in March and six new fellowships were awarded.

Summer Classes for Sight-Saving Teachers.—The National Society for the Prevention of Blindness announces the following summer courses for the preparation of teachers and supervisors of sight-saving classes:

Oregon State System of Higher Education, Portland, Ore., elementary course, June 17 to July 26, under Miss Olive S. Peck, Cleveland.

Wayne University, Detroit, elementary course, June 24 to August 2 or July 1 to August 9, under Miss Margaret M. Soares, Detroit.

State Teachers College, Buffalo, N. Y., elementary course, July 1 to August 9, under Miss Mattie M. Carter, Albany, N. Y.

University of Minnesota, Minneapolis, advanced course, June 17 to July 26, under Mrs. Winifred Hathaway, New York.

Annual Dinner of Obstetric Board.—The annual dinner of the American Board of Obstetrics and Gynecology will be held at the Hotel McAlpin, New York, Wednesday evening, June 12. Diplomates certified at the preceding days' examination will be introduced and there will be several speakers. All diplomates of the board and others interested in the work of the board are cordially invited. Tickets at \$3.50 each may be obtained from Dr. Joseph L. Baer, chairman, 104 South Michigan Avenue, Chicago, or at the registration desk during the examinations. For further information address Dr. Paul Titus, secretary of the board, 1015 Highland Building, Pittsburgh.

American Otological Society.—The seventy-third annual meeting of the American Otological Society will be held at the Westchester Country Club, Rye, N. Y., May 30-31, under the presidency of Dr. Horace Newhart, Minneapolis, whose subject will be "Conservation of Hearing." The program includes a symposium on the recognition, treatment and prevention of hearing impairment in children and panel discussions on "Infectious Lateral Sinus Thrombophlebitis" and "Information Please: Regarding Hearing Aids and Audiometers." Other speakers will include:

Dr. Hallowell Davis, Boston, The Clarification of Certain Phases of the Physiology of Hearing.

Dr. Champ Lyons, Boston, The Causes of Sulfanilamide Failures.

Willis C. Beasley, Ph.D., Bethesda, Md., The General Problem of Deafness in the Population.

F. H. Shepard Jr., Merchantsville, N. J., A New Amplifier Having Characteristics Similar to Those of the Human Ear, and Its Application to the Problem of Deafness.

Alumni Reunions.—The class of 1930 of Columbia University College of Physicians and Surgeons will hold its tenth reunion during the annual session of the American Medical Association in New York. The 1930 alumni will occupy a table at the dinner of the Alumni Association of the College of Physicians and Surgeons, June 12, at the Columbia University Club. Dr. Charles A. Perera, 70 East Sixty-Sixth Street, New York, is secretary of the class.—Phi Lambda Kappa Fraternity will hold a luncheon at the Longchamps Restaurant, New York, June 12. Reservations may be obtained at the Phi Lambda Kappa booth at the American Medical Association meeting or by addressing Dr. Herman Wechsler, 214 Echo Place, Bronx, N. Y.—The alumni of Creighton University Medical School, Omaha, will hold a banquet during the annual session of the American Medical Association in New York, June 12, in the North Ballroom, Hotel New Yorker. Reservations may be made through Dr. Carl R. Palmer, Hotel New Yorker, New York. The banquet will be informal, \$3.50 per plate.

American Dermatological Association.—The sixty-third annual meeting of the American Dermatological Association will be held at the Broadmoor Hotel, Colorado Springs, May 30-June 1, under the presidency of Dr. Frank Crozer Knowles, Philadelphia. Among the speakers announced are:

Dr. Frederick R. Schmidt, Chicago, Iodine in the Treatment of Diseases of the Skin: The Influence of Climate and the Weather.

Dr. Francis W. Lynch, St. Paul, The Histopathology of Acne.

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Dr. Charles C. Dennie, Kansas City, Mo., Massive Destruction of the Face.
Dr. A. Benson Cannon, New York, A Clinical and Laboratory Study of Epidermolysis Bullosa.
Dr. Francis E. Seneat and Marcus R. Caro, Chicago, Lichen Striatous.
Dr. Louis A. Brunsting and Charles Sheard, Ph.D., Rochester, Minn., A Study of Dark Adaptation in Cases of Pityriasis Rubra Pilaris.
Dr. Carroll S. Wright, Philadelphia, Vitamin D Therapy in Dermatology.
Dr. William H. Goeckerman, Los Angeles, Some Injurious Effects of Arsenic.
Dr. Howard J. Parkhurst, Toledo, Ohio, Toilet Soaps, Soap Substitutes and Hard Water: A Study of Various Combinations by Patch Tests.

Association for Research in Ophthalmology.—The eleventh scientific meeting of the Association for Research in Ophthalmology will be held in New York at the Biltmore Hotel, June 11. Papers to be presented will be:

Drs. Theodore L. Terry, Boston, and Julian F. Chisholm, Savannah, Ga., Effect of Pressure on Conical Cornea.
Dr. Irving Puntenney, Chicago, Effect of Certain Physical and Chemical Stimuli on the Caliber of the Retinal Vessels in Man.
Drs. Erich Sachs and Parker Heath, Detroit, Pharmacologic Experiments on Isolated Segments of Mammalian Iris.
Dr. Loren P. Guy, New York, Passage of Horse Serum from the Blood Stream into the Aqueous Humor of Normal and Immunized Animals.
Dr. Phillips Thygeson, New York, Cultivation of Conjunctivitis and Keratitis Producing Agents on the Chorio-Allantoic Membrane of the Chick Embryo.
Dr. Kenneth C. Swan and William Hart, M.A., Iowa City, A Comparative Study of the Effects of Mecholyl, Doryl, Eserine, Pilocarpine, Atropine and Epinephrine on the Blood-Aqueous Barrier.
Dr. Karl Meyer and Eleanor Chaffee, New York, The Mucopolysaccharide Acid of the Cornea and Its Enzymatic Hydrolysis.
Drs. Lincoln F. Steffens and Hugo L. Bair and Charles Sheard, Ph.D., Rochester, Minn., Dark Adaptation of Normal Adults on Diets Deficient in Vitamin A.

American Heart Association.—The sixteenth scientific sessions of the American Heart Association will be held at the Hotel Roosevelt, New York, June 7-8, under the presidency of Dr. William D. Stroud, Philadelphia. The speakers will include:

Dr. John M. Askey, Los Angeles, The Syndrome of Painful Disability of the Shoulder and Hand Complicating Coronary Thrombosis.
Drs. Helen B. Taussig and Marcellus Goldenberg, Baltimore, Studies in Cardiac Enlargement in Children with Rheumatic Heart Disease.
Dr. Arthur L. Smith, Lincoln, Neb., Fetal Heart Sounds in Fifty-Two Cases.
Drs. Edgar V. Allen and George E. Brown, Rochester, Minn., Simplified Method of Producing Continuously an Increased Blood Flow to the Extremities: Clinical and Physiologic Studies.
Drs. Gilbert H. Marquardt and Angina Pectoris Attacks.
Drs. Hugh Montgomery, Meyer Naide and Norman E. Freeman, Philadelphia, Diagnostic Procedures in Peripheral Arterial Disease.
Dr. Louis Hamman, Baltimore, will deliver the Lewis A. Conner Lecture, Friday, on "Coronary Embolism" and Dr. Henry C. Bazett, Philadelphia, the George Brown Memorial Lecture, Saturday, on "Blood Volume and Cardiovascular Adjustments."

American Proctologic Society.—The forty-first annual meeting of the American Proctologic Society will be held in Richmond, Va., June 9-11, with headquarters at the Jefferson Hotel and under the presidency of Dr. Martin S. Kleckner, Allentown, Pa. Dr. Alois B. Graham, Indianapolis, will deliver the biennial Joseph M. Matthews Oration, on "An Appraisal of the American Proctologic Society." The program will include a symposium on anal pruritus by Drs. Theodore F. Reuther, Chicago, on "The Nerves of the Anorectal Region," and Malcolm R. Hill, Los Angeles, "The Etiologic Relationship Between Dermatitis and Pruritus Ani." In addition, the following papers will be presented, among others:

Dr. Thomas T. Mackie, New York, The Role of Avitaminosis in Rectal Bleeding.
Dr. Curtis C. Mechling, Pittsburgh, Metastasis from Rectal and Colonic Tumors.
Dr. Walter A. Fansler, Minneapolis, Diverticulosis and Diverticulitis.
Drs. Harry E. Bacon and Hesser C. C. Lindig, Philadelphia, Spinal Anesthesia.
Dr. Edward G. Martin, Detroit, The Technic of Permanent Colostomy.
Dr. Douglas Palmer, New York, Present Day Diagnosis of Diseases of the Colon.
Dr. Kenneth E. Smiley, Los Angeles, Repair of the Sphincter Ani with Alloy Steel Sutures.

Registration Under Harrison Narcotic Act and the Marihuana Tax Act.—On or before July 1, every physician registered under the Harrison Narcotic Act or under the Marihuana Tax Act, or under both, must reregister with the collector of internal revenue of each district in which he maintains an office or a place for the treatment of patients. Failure to reregister within the time allowed by law adds a penalty of 25 per cent to the annual tax payable at the time of registration and in addition makes the physician in default liable to a fine not exceeding \$2,000, or to imprisonment for not exceeding five years, or to both. In recent years the Commissioner of Internal Revenue has given some negligent or recalcitrant physicians the choice between paying substantial sums by way of compromise in lieu of the penalties for their offenses or,

as an alternative, accepting criminal prosecution with resultant publicity and liability to fines and possible imprisonment. This was an act of grace on the part of the commissioner; he might have instituted criminal prosecutions without allowing the offending physicians any choice in the matter. If the course that the commissioner has adopted does not produce the desired promptness in registration, he will have no recourse other than criminal prosecution to attain that result.

Meeting of Chest Physicians.—The American College of Chest Physicians will hold its sixth annual meeting at the Biltmore Hotel, New York, June 8-10, under the presidency of Dr. Ralph C. Matson, Portland, Ore. Among papers to be presented are the following:

Dr. Richard H. Overholt, Brookline, Mass., Extrapleural Pneumothorax: A Report of Experiences and Present Day Indications.
Dr. Herbert R. Edwards, New York, Case Finding: A Fundamental in Tuberculosis Control.
Dr. Andrew L. Banyai, Wauwatosa, Wis., Newer Aspects of the Pneumoperitoneum Treatment of Pulmonary Tuberculosis.
Dr. Louis H. Clerf, Philadelphia, Bronchoscopy in Bronchial Obstruction.
Dr. William F. Rienhoff Jr., Baltimore, Surgical Management of Carcinoma of the Lung.
Drs. Harold Brunn and Sidney J. Shipman, San Francisco, Certain Aspects of Intrapulmonary Cavitation.

There will be "Information Please" luncheons on Saturday and Sunday with groups of experts to answer questions. Monday there will be clinics at Lenox, Kings County, Montefiore, Sea View, Bellevue and Kingston Avenue hospitals and the group will attend a symposium on tuberculosis to be presented in the Section on Practice of Medicine of the American Medical Association.

National Gastroenterological Association.—The fifth annual convention of the National Gastroenterological Association will be held at the Hotel Roosevelt, New York, June 4-6, under the presidency of Dr. Anthony Bassler, New York. Invited speakers on the program include:

Dr. William Wayne Babcock, Philadelphia, Diverticulitis.
Dr. Chester S. Keefer, Boston, The Fatty Liver: Its Clinical Features and Clinical Course.
Dr. Robert M. Zollinger, Boston, Surgical Treatment of Gallbladder Disease.
Dr. Richard B. Cattell, Boston, Indications for and the Results of Complete Colectomy in Chronic Ulcerative Colitis.
Drs. Charles A. Donn, Philip T. Knies and Clark P. Pritchett, Columbus, Ohio, Gastroscopic Studies of Multiple Erosions of the Human Gastric Mucosa with Prompt Response to Histamine.
Dr. Willard D. Mayer, Detroit, Further Observations on the Use of Food in the Treatment of Bleeding Peptic Ulcer (Meulengracht Diet).
Dr. Boris P. Bakkin, Montreal, Canada, The Influence of the Parathyroid Glands on the Secretory Processes of the Stomach.
Dr. James D. Adamson, Winnipeg, Man., John Abercrombie and His Work on Gastric Ulcers.
Dr. James Harvey Black, Dallas, Texas, Gastrointestinal Allergy.
Dr. Tate Miller, Dallas, Indications and Contraindications of Medical Treatment of Gallbladder Diseases and Duodenal Ulcer.
Dr. Harry P. Smith, Iowa City, Vitamin K: Its Use in Patients with Obstructive Jaundice or with Biliary Fistula.

Tuberculosis Organizations Meet in Cleveland.—The annual meetings of the National Tuberculosis Association, the American Trudeau Society and the National Conference of Tuberculosis Secretaries will be held in Cleveland, June 3-6, with headquarters at the Hotel Statler. The medical and administrative sections will hold separate sessions the first two days and a joint session the third day; the tuberculosis association and the Trudeau Society will meet on the fourth day jointly with the American Association for Thoracic Surgery, which meets June 6-8. Among the medical papers listed on the program are:

Drs. Richard M. McKean, George C. Thosteson and Nathan Brooks, Detroit, Treatment of Tuberculosis and Diabetes, A Ten Year Experience.
Drs. Lynne E. Baker, James N. Christiansen and McKinnin L. Phelps, Cincinnati, Tuberculous Empyema.
Dr. Maxim Pollak, Peoria, Ill., Chemotherapy in Tuberculosis.
Dr. Harry J. Corper, Denver, Norwich, Conn., The Application of Laminography in Chest Conditions.
Dr. Fred H. C. Heise, Trudeau, N. Y., Constitutional Factors and Diet in Tuberculosis.
Drs. Andre Courmand and Dickinson W. Richards Jr., New York, and Herbert C. Maier, Ann Arbor, Mich., Functional and Physiologic Disturbances Following Severe Thoracic Deformities.

Meeting of Clinical Pathologists.—The American Society of Clinical Pathologists will hold its nineteenth annual meeting and seventh seminar at the Hotel Biltmore, New York, June 7-9, under the presidency of Dr. Leonard W. Larson, Bismarck, N. D., whose subject will be "The Clinical Pathologist." Among the speakers will be:

Drs. James B. McNaught, Rodney R. Beard, and Jack D. Myers, San Francisco, Diagnosis of Trichinosis by Skin and Precipitin Tests.
Drs. Max M. Strumia, Joseph A. Wagner, Bryn Mawr, Pa., and James Frederick Monaghan, Philadelphia, Use of Citrated Plasma, Fresh and Preserved and the Institution of Plasma Bank.
Drs. Nathan Rosenthal, Frank A. Bacon and Peter Vozel, New York, Importance of Sternal Puncture as a Diagnostic Aid in Hematologic Conditions.

Dr. Maxwell M. Wintrobe, Baltimore, Summary and Evaluation of Sedimentation Tests.
Dr. Walter W. Jetter, Taunton, Mass., and Dr. Merrill Moore, Boston, and Glenn C. Forrester, Ph.D., Niagara Falls, N. Y., A New Method for the Determination of Breath Alcohol Using Magnesium Perchlorate.

At the tumor seminar, Sunday, Dr. James Ewing, New York, will speak on "Problem Tumors of the Breast." E. P. Coffey, chief, technical laboratory, Federal Bureau of Investigation, U. S. Department of Justice, Washington, D. C., will address the banquet session on "What the Medical Profession Contributes to Crime Detection."

Ear, Nose and Throat Meeting.—The forty-sixth annual meeting of the American Laryngological, Rhinological and Otolological Society, Inc., will be held at the Hotel Waldorf-Astoria, New York, June 6-8. Among the speakers will be:

Dr. Austin A. Hayden, Chicago, Hearing Aids—Indications for Their Use.
Dr. Edmund P. Fowler, New York, Head Noises—Significance, Measurement, and Importance in Diagnosis and Treatment.
Dr. Frederick T. Hill, Waterville, Me., A Study of Mortality Records Over a Ten Year Period.
Dr. Hermon Marshall Taylor, Jacksonville, Absorption of Quinine into the Cerebrospinal Fluid of the Fetus in Utero.
Dr. Louis H. Clerf, Philadelphia, Cancer of the Larynx.
Dr. Hayes E. Martin, New York, The Selection of the Method of Treatment in Laryngeal Cancer.
Dr. Frederic W. Bancroft, New York, The Use of Anticoagulants in Thrombosis and Embolism.
Dr. Martin R. Steinberg, Philadelphia, The Role of Oxalic Acid and Related Di-Carboxylic Acids in the Treatment and Control of Hemorrhage (co-authors: Drs. Hyman I. Segal and Herman M. Parris, both of Philadelphia).
Dr. Alfred J. Cone, St. Louis, The Use of Salt Pork in Hemorrhages.
Dr. French K. Hansel, St. Louis, The Treatment of Allergy of the Nose and Paranasal Sinus by Hyposensitization with Dust Extracts.
Dr. Warren T. Vaughan, Richmond, Va., Special Allergic Diagnostic Methods Appropriate for the Rhinologist.
Dr. Elbyrne G. Gill, Roanoke, Va., The Management of Thyroglossal Cyst, with Report of Ten Cases.
Dr. Rea E. Ashley, San Francisco, Surgical and Non-Surgical Treatment of the Chronically Discharging Middle Ear.
Dr. Henry L. Williams, Rochester, Minn., Roentgen Therapy for Acute Sinusitis.

Meetings on Industrial Medicine.—The twenty-fifth annual meeting of the American Association of Industrial Physicians and Surgeons will be held in New York at the Hotel Pennsylvania, June 6-7, under the presidency of Dr. McIver Woody, New York. Among the speakers announced are:

Dr. John J. Moorhead, New York, Care and Handling of Traumatic Injuries.
Dr. Byron P. Stookey, New York, Problems in Diagnosis and Management of the Nucleus Pulposus.
Dr. Marion B. Sulzberger, New York, Occupational Dermatitis.
Dr. Irving S. Wright, New York, Trauma and the Peripheral Vascular System.

Preceding the meeting of the physicians and surgeons will be the first annual meeting of the American Industrial Hygiene Association, June 4-5, under the presidency of Mr. William P. Yant, Pittsburgh. Among addresses to be delivered will be:

Donald E. Cummings, B.S., director, division of industrial hygiene, University of Colorado School of Medicine, Denver, Industrial Hygiene in Steel Plant Practice.
Hervey B. Elkins, Ph.D., chief chemist, division of occupational hygiene, Massachusetts Department of Labor and Industry, Boston, Exposure to Mercury in the Manufacture of Felt Hats.
H. W. Ruf, industrial hygiene unit, Wisconsin State Board of Health, Madison, Wis., and Dr. Elston L. Belknap, Milwaukee, Studies of the Lead Hazard in Printing.
William R. Bradley, bureau of industrial hygiene, city board of health, Detroit, Animal Studies on the Toxicity of Antimony.

Meeting of Psychiatrists.—The ninety-sixth annual meeting of the American Psychiatric Association will be held at the Netherland Plaza Hotel, Cincinnati, May 20-24, under the presidency of Dr. William C. Sandy, Harrisburg, Pa. Among the speakers will be:

Dr. Hiram Houston Merritt, Boston, A Report on New Drugs for the Treatment of Epilepsy and a Further Report on the Results of the Use of Dilantin.
Dr. Burrum C. Schiele, Minneapolis, A Clinical Study of Sleep Disturbances.
Dr. William Y. Baker, Seattle, Carbohydrate Metabolism in Relation to Anxiety States.
Drs. Hugh T. Carmichael, Allan T. Kenyon and William J. Noonan, Chicago, The Effects of Testosterone Propionate in Impotence.
Dr. András Angyal and Nathan Blackman, Worcester, Mass., Vestibular Reactivity in Schizophrenic and Normal Individuals.

There will be symposiums and round table discussions. At the annual dinner, Wednesday, Major Norman A. Imrie, associate editor, *Columbus Dispatch*, Columbus, will give an address entitled "Victory by Surprise." A public meeting will be held in the Taft Auditorium, Monday evening, in cooperation with the Cincinnati Academy of Medicine, Cincinnati Medical Hygiene Council and the Public Health Federation. Dr. Emerson A. North, professor of psychiatry, University of Cincinnati College of Medicine, will open the meeting with Dr. Rock

Sleyster, Wauwatosa, Wis., President, American Medical Association, the presiding officer. The speakers will be Drs. Edward A. Strecker, Philadelphia, on "Alcoholism—A Personal and Social Problem"; Helen Flanders Dunbar, New York, "Medicine Yesterday and Today," and Winfred Overholser, Washington, D. C., "Facts and Fiction About State Mental Hospitals." The American Psychopathological Association will meet at the Hotel Netherland Plaza, May 18-19, and the American Psychoanalytic Association, May 19-22.

American Rheumatism Association.—The annual meeting of the American Rheumatism Association will be held at the Hotel Waldorf-Astoria, New York, June 10, under the presidency of Dr. Philip S. Hench, Rochester, Minn. Included on the program will be:

Dr. William T. Green, Boston, Mono-Articular and Pauci-Articular Arthritis in Children.
Dr. Robert M. Stecher, Cleveland, Heberden's Nodes: Heredity in Hypertrophic Arthritis of the Finger Joints.
Dr. Otto Steinbrocker, New York, Local and Regional Analgesic Injections in the Treatment of Intractable, Nonsurgical Shoulder Conditions.
Dr. May G. Wilson, New York, Dr. Ralph E. Wheeler, Bethesda, Md., and Morton D. Schweitzer, Ph.D., New York, The Familial Epidemiology of Rheumatic Fever.
Drs. Daniel Murray Angevine, Sidney Rothbard and Russell L. Cecil, New York, Cultural Studies on Rheumatoid Arthritis and Rheumatic Fever.
Drs. Otto Rosenthal, Philadelphia, Morris A. Bowie, Bryn Mawr, Pa., and George W. Wagoner, Philadelphia, Metabolism of Cartilage (Bovine) with Particular Reference to the Effects of Aging.
Drs. Ward Darley Jr. and Robert W. Gordon, Denver, Latent Brucellosis: Its Importance in Association with Joint, Muscle and Nerve Pain.
Dr. Ralph K. Ghormley, Rochester, Minn., A Discussion of the End Results of Synovectomies of the Knee Joint.
Drs. Charley J. Smyth, Richard H. Freyberg and Willis S. Peck, Ann Arbor, Mich., Experiences with Roentgen Therapy in Various Rheumatic Conditions.

Dr. Hench will deliver his presidential address on "Acute Multiple Recurring Arthritis and Periarthritis: Forty Cases of a New Articular Disease," and E. P. Coffey, chief, technical laboratory, Federal Bureau of Investigation, U. S. Department of Justice, will address the annual dinner on "What the Medical Profession Contributes to Crime Detection."

CANADA

Typhoid Near Winnipeg.—Sixty-four cases of typhoid with four deaths are reported to have occurred in the city of St. Boniface and the municipality of Ste. Anne, near Winnipeg, just previous to April 9, the *Canadian Public Health Journal* reported. The outbreak was attributed to infected food.

Personal.—Dr. John C. Mackenzie, general superintendent of the Montreal General Hospital, has been appointed officer in charge of all hospital administration to the Canadian forces in England, according to the *Canadian Medical Association Journal*.—The Honorable Henri Groulx, Montreal, a pharmacist and a member of the provincial legislature, has been appointed provincial secretary and minister of health for Quebec.

CORRECTIONS

The Late Dr. J. P. Widney.—In THE JOURNAL, April 27, p. 1669, column two, it was said that Dr. J. P. Widney is still living in Los Angeles in his ninety-seventh year. Dr. Widney died July 4, 1938, aged 96.

Dr. Himwich Is a Doctor of Medicine.—In an announcement of the program of the Association on Mental Deficiency in THE JOURNAL, page 1942, the name of Dr. Harold E. Himwich, Albany, N. Y., appeared with the Ph.D. degree. Dr. Himwich is a doctor of medicine, having graduated from Cornell University Medical College, New York, in 1919.

The Therapy of Dropsy.—In the special article by Dr. H. M. Marvin on "The Therapy of Dropsy" in THE JOURNAL, March 2, page 759, first column, the sentence beginning in line 16, should read: These are organic mercurial compounds containing respectively 33 to 34.5 per cent and 39.6 per cent of mercury and are effective when administered by intravenous or intramuscular injection or in the form of rectal suppositories. In the second column on the same page, the sentence beginning in line 40 should read as follows: The advantages of combining the two have been so apparent in recent years that many mercurials now marketed in Europe have been modified by the addition of theophylline. Several years ago salyrgan was thus modified and is available under the name salyrgan-theophylline; its content of theophylline is 5 per cent, which is slightly more than the 3.5 per cent found in mercupurin. (The latter is mercurin combined with theophylline.)

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 13, 1940.

Improved Health of the Nation

The population of England and Wales in the middle of 1938 is estimated in the registrar general's statistical review for the year as 41,215,000. The population at the 1931 census was 39,952,377. The births registered during 1938 numbered 621,204. The birth rate was 15.1 per thousand persons living, which was 0.2 above that for 1937, 0.3 above that for 1936 and 0.7 above that for 1933. The last, 14.4, was the lowest ever recorded. The mortality of infants under 1 year was 53 per thousand live births, which was 4 per thousand below the lowest rate on record. Record low rates were also reached for a number of infectious diseases. The mortality from infectious and parasitic diseases in general dropped to 1.01 per thousand, a decrease of 0.16 compared with the previous low record of 1936. Maternal mortality, excluding deaths from abortion, declined for the fourth year in succession to a new low level of 2.62 per thousand births. The death rate from whooping cough per million children under the age of 15 years was 126, while the previous lowest level was 170.

The general death rate was 11.6 per thousand of population and 0.8 below that for 1937. The only year with a lower rate was 1930, when the figure was 11.4. After allowing for the increasing proportion of old people in the population, the corrected or standardized rate was only 8.5, an improvement on the record rate of 1935 by 0.5. But the cancer rate, also standardized to allow for the increasing age of the population, rose slightly, to 1,005 per million from 1,002 in 1937.

Light Armor in Modern Warfare

Mr. Kenneth Walker, a genito-urinary surgeon experienced in the treatment of wounds in front line conditions in the last great war, advocates in the *British Medical Journal* the use of light armor. During the last two years of the war he was occupied touring the third army front, studying such questions as the early treatment of wounds, the combating of surgical shock, the methods of transporting the wounded to the casualty clearing stations and the possibility of transfusion in the regimental aid post. He noted the large number of men who died in the trenches as the result of being hit in the front of the chest by tiny fragments of grenades or shell that ripped open some large vessel with rapidly fatal effect. The most fatal area corresponded to that part of the chest covered by the box respirator when carried in the alert position. Remembering how many men had been saved by the steel helmet, he sent to headquarters a memorandum suggesting that a pocket might be made in the box respirator into which could be slipped a steel plate. By curving the plate to the chest and adding a suitable fastening, it would be possible to attach the plate, when not in use, to a wooden handle, so as to serve as an entrenching tool. The memorandum came to rest in a pigeon hole of the Ministry of Munitions, where it would have remained had not a friend, the late Arthur Asquith, been made controller of trench warfare supplies. He showed it to his chief, Winston Churchill. The result was that Walker was recalled to work at the ministry as expert in light armor. But, as it had taken two years' agitation to introduce the steel helmet and the war was nearly over, he declined the appointment.

The same question now arises. Having accepted the value of protecting the head from projectiles of low penetrating power, Walker asks, Is it not advisable to extend the principle to other vulnerable areas? Of course no armor that a man

can support will render him immune to missiles traveling with the momentum of a bullet, but the records show that 60 per cent of the wounded were put out of action by projectiles other than bullets. Sauerbach found that 37 per cent of those found dead on the battle field had chest wounds, while at a British casualty clearing station the percentage was only 3. Thus the vast majority of chest wounds prove fatal from hemorrhage in the trenches.

Salmonella Infections

At the Royal Society of Medicine Sir William Savage opened a discussion on salmonella infections, of which he mentioned four features: (1) The organisms were all true parasites; (2) they never occurred outside the body as saprophytes; (3) they were not natural inhabitants of any animal intestine; (4) when found in animals they represented an old infection and were examples of the carrier state. A large number of types were isolated, certainly over forty, which were not convertible into one another and serologically were distinct. Their pathologic manifestations fell into three groups—continued fever, gastrointestinal irritant action and general infection of the septicemic type. They were widespread as a cause of disease in man, mammals and birds. Prevention depended largely on ability to associate the type, the host and the pathologic activity. Individual types had their select hosts and usually their specific pathologic activity. It was doubtful whether serologic factors were a reliable guide. The difference in mode of action was probably associated with difference in host resistance or degree of sensitivity of the animal intestine.

Mr. E. R. Lovell dealt with salmonella infections in domestic animals. In addition to sporadic infections there were several well defined conditions, such as bacillary white diarrhea of chickens, infections of bovines with *Bacillus enteritidis* and of mares and ewes with *Brucella abortus* and *Brucella abortus ovis* respectively. Salmonella bacteria were also found in frequent association with certain viruses, such as the virus of swine fever. Some of the less common varieties of Salmonella originally found in man were found to grow in animals, such as the pig. Until recently the *Bacillus paratyphosus B* organism was considered to be wholly human, but in Norway it was isolated from carriers and the source appeared to be a dog that was ill with vomiting and diarrhea just before the human cases developed.

Throat, Nose and Ear Hospitals

London has three hospitals devoted to diseases of the throat, nose and ear. There are also of course departments for these diseases in the large general hospitals. The two larger of the hospitals for these diseases—the Central London Throat, Nose and Ear Hospital and the Golden Square Nose, Throat and Ear Hospital—have decided to amalgamate. The committees of the two hospitals have agreed to erect on the enlarged site of the former, Gray's Inn Road, a hospital which should be the authoritative center of laryngology and otology of the British Empire. But the war has caused a postponement of building operations.

Canadian War Hospital in England

The Canadian Red Cross Society is providing funds to create in England for the Canadian wounded one of the most modern hospitals in the world. This hospital, which will have 660 beds, is taking shape at Cliveden, the seat of Lord Astor. It is hoped that the first section will be opened next month. All the departments will be equipped with the latest apparatus. The research laboratory will be under the supervision of a famous Canadian, Sir Frederick Banting, the discoverer of insulin. The Canadian Red Cross Society is doing important work in other directions at its overseas headquarters in London. An information and research bureau has been formed, where arrangements have been made for keeping records of all casualties among Canadian soldiers.

Woman Surgeon Loses Her Post in Consequence of Marriage

The unusual case of a woman surgeon who lost her post as visiting surgeon because she married came up at the annual meeting of the governors of the Glasgow Royal Samaritan Hospital for Women. She joined the staff in 1936 and was promoted visiting surgeon to fill a vacancy. Her appointment was terminated last September. An explanation was offered on behalf of the governors by the chairman, who declared that there was no ban on the appointment of a married woman to the staff. The decision not to renew the appointment of the woman surgeon was due to her marriage with another visiting surgeon. There were only three visiting surgeons, and the governors came to the conclusion that it was not in the interests of the hospital that a husband and wife should concurrently hold two out of the three posts. It was a delicate administrative point.

ITALY

(From Our Regular Correspondent)

April 1, 1940.

Congress of Obstetrics and Gynecology

The thirty-sixth Congress of the Società Italiana di Ostetricia e ginecologia was held at Turin, with Professor Cova as president. The first official topic was gynecologic symptoms of extragenital diseases. Professor Voza, of the University of Cagliari, said that nutritional disorders may cause symptoms of genital disturbances. An insufficient diet, working in closed environment and the preoccupations of modern life have unfavorable influence on the genital functions of women. Tuberculosis, syphilis, chronic lead poisoning and argyria may cause ovarian insufficiency, dysmenorrhea, genital infantilism and sterility. Genital hemorrhages are frequent in industrial poisoning from arsenic, benzene and phosphorus.

With regard to the second topic, ovarian hormone therapy in obstetric conditions and in gynecologic diseases, Professor Maurizio, of the University of Sassari, said that estradiol monobenzoate is five times more active than estrone. It is advisable to establish an international unit of benzoate measured in milligrams. The ratio of doses between the parenteral, oral and percutaneous routes is 1:5:7. When the substance is administered by the intravenous route an immediate strong reaction follows. Estrogen and progesterone, when administered in primary amenorrhea, induce development of the mucosa and appearance of menstruation. Estrogen and progesterone therapy when administered in secondary amenorrhea, gives satisfactory results in 75 per cent of the cases if the condition is of less than one year's duration and in 30 per cent of the cases if it has existed for more than one year.

Professor Robecchi discussed the x-ray aspects of female sterility. The speaker carried on x-ray observations for sterility in more than 500 women. Sterility is caused in from 25 to 40 per cent of the cases by obstruction of the fallopian tubes with predominant location at the ampullar portion of the tubes.

Professor Clivio, of Genoa University, discussed the harmful effects of anticonceptual practices. Sometimes fibromuscular tumors develop late in the life of women who have resorted to anticonceptual methods.

The next congress will be held in Naples. The official topics will be etiopathogenesis of renal diseases during pregnancy, and obstetrics in Italian colonies. Professors Musazza and Gaifami will be speakers.

Public Health in Libya

The number of health institutions in Libya before the Italian occupation was as follows: a military and a municipal hospital of fifty beds each, a leprosarium and a pharmacy in Tripoli, a military hospital and a pharmacy in Bengasi and a pharmacy in Derna. There were also some private health institutions. Pub-

lic health at present is a duty of the government in collaboration with a colonial council and a central inspectorial department. Each province has an office of sanitation with a medical inspector. A department in Tripoli supplies gratuitously with sanitary material all the health institutions of the provinces. Tripoli has an isolation hospital, a quarantine station and a laboratory of hygiene and prevention of diseases. Similar institutions are already functioning in Bengasi. The main cities have been provided with a hospital and the municipalities with centers for temporary care of patients. Trachoma is frequent among natives (75 per cent in native soldiers and 2 per cent in European soldiers). Among school children there is a frequency of 78 per cent for Moslems, 34 per cent for Jews and 3 per cent for Europeans. Several centers for free medical care of poor pregnant women, an organization for the care of parturients in their homes, a center for free distribution of milk, a dining room for poor mothers and a nursery for children of working mothers with free feeding for children are available. There is an organization of metropolitan midwives and a nursery school for Moslem women.

Personal

Professor Onodei-Zorini of the University of Rome was appointed to the chair of phthisiology of Naples University. The chair was recently established by the minister of national education. This is the second chair of phthisiology in Italy.

SWITZERLAND

(From Our Regular Correspondent)

April 12, 1940.

Number of Swiss Physicians

The official body of the Swiss medical profession has recently made its report for 1938. Inclusive of hospital physicians, the number of men actively engaged is 4,734, one physician to 882 persons out of a total population (1937) of 4,176,400 inhabitants. There were 3,488 practicing physicians, 1,521 of whom were specialists (44 per cent). Head physicians of hospitals numbered 170, with 963 paid and unpaid assistants. One hundred and thirteen physicians were employed in hygiene, on boards of health, as school physicians and so on. In the five Swiss universities, 1,531 medical students of Swiss nationality were enrolled during the winter semester of 1938-1939.

Charlatanism

Public health in Switzerland is not under federal control but is left to cantonal jurisdiction. This varies widely. In the small canton of Appenzell Ausser-Rhoden, for example, no requirement of medical training and examination for the practice of medicine exists. This canton has about thirty physicians and 180 "naturopaths" (naturärzte). One of these recently, on the occasion of his fiftieth birthday, distributed throughout Switzerland 50,000 copies of a pamphlet which he entitled "God helps him who helps himself." On the title page 777 diseases were alphabetically listed with 1,366 natural remedies. The diseases included cancer, mental debility, glaucoma, impotence, syphilis and poliomyelitis.

The intercantonal drug control bureau in Berne brought to the attention of the cantonal bureau the unscrupulous way in which human diseases were exploited and requested that the man be put out of business. He was tried before the cantonal court and acquitted. An upper court reversed the ruling but passed only a light sentence on the defendant, consisting of a four day imprisonment and a six month forfeiture of civic honors and rights. The case was appealed to the federal supreme court. It affirmed the lower court's decision, criticizing fraud in advertising.

Swiss Hospitals

The Swiss statistical bureau with the aid of the medical profession has prepared statistical data that include all public and private hospitals of Switzerland. There are 544 hospitals with

59,871 beds, 143 to 10,000 inhabitants, and 1,541 hospital physicians, 1,216 of whom have been appointed by the central bureau. There are 9,696 nurses, 7,969 of them females. About 10,000 persons are employed in the care and maintenance of patients and hospitals. Eighty-seven per cent of the beds are intended for adults, 13 per cent for children and infants. A total personnel of 100, including nurses, administrative and maintenance divisions, is required, on the average, for 300 beds (in children's hospitals and 361 in those of mental diseases). The distribution of the 544 hospitals and the 59,871 beds is given in the accompanying table. The total average use of hospital beds, allowing for individual variations, amounted to 80 per cent (94.3 per cent in hospitals for mental diseases). Hence hospital needs in normal times are sufficiently provided for.

During the year 1937 about 48,000 persons were hospitalized, with an average stay of fifty-one days. This relatively high

Distribution of Hospitals and Beds

	Hospitals, per cent	Beds, per cent
General hospitals (cantonal, district, circuit and community).....	28.8	33.9
Hospitals exclusively for women.....	2.9	2.7
Hospitals exclusively for children...	3.5	2.5
Tuberculosis sanatoriums	22.3	13.2
Hospitals for mental diseases.....	12.5	29.0

number is accounted for by the longer hospitalization of the mentally diseased, tuberculous and chronic patients. Though the proportion of females to males in Switzerland's population is high (108:100), the proportion of female to male patients (129:100) is exceptionally high. The mortality of hospitalized patients in relation to the total number of patients treated was 5 per cent. Of 1,000 deaths, 365 occur in the hospital.

More single rooms, however, are needed. Of the total of 59,871 beds, 31.7 per cent are situated in rooms intended for one and two beds, 36 per cent in rooms intended for from three to six beds, and 32.1 per cent in rooms of from seven to twenty-one and more beds.

THE NETHERLANDS

(From Our Regular Correspondent)

March 16, 1940.

Nutrition Problems in the Netherland Indies

In an article in the *Geneeskundig tijdschrift voor Nederlandsch-Indië* Prof. W. F. Donath, J. H. De Haas and G. J. A. Terra discuss the difficulties of improving the general nutrition in the Netherland Indies. In certain regions undernourishment exists because of a deficiency in the caloric values and in the quantity of animal and vegetable proteins, fats, mineral salts and vitamin A. A vitamin B deficiency is also encountered, although in general, where rice is the principal commodity of food, enough of the outer coat of the grain is left in the processing. The authors propose that studies be made to promote knowledge of the deficiency factors involved. They suggest the need of closer cooperation among existing agencies, such as the departments of public health and of the interior, of economic control and of education, a cooperation entrusted to the Institut pour l'alimentation populaire, which was founded in 1934 and subsidized from Queen Wilhelmina's jubilee foundation and by voluntary contributions. The work is at present done by seven scientific research groups, which are independent of one another.

The creation of an independent governmental research and laboratory institute, forming part of the public health service and possessing the power to initiate measures, is also regarded as desirable in the attack on the nutrition problems. The article lists 300 relevant publications that appeared between 1851 and 1936.

Malaria Control in North Brabant

Malaria control in the province of North Brabant is exercised from new epidemiologic points of view under the direction of Professor Swellengrebel. The guiding principles that seem to promise results consist in (1) destruction of mosquitoes by vaporizing insecticides between August 15 and the end of September, especially in houses in which large families are domiciled; (2) examination of the spleen of school children in infected regions in the search for plasmodia; (3) the administration of a plasmochin and quinine preparation three weeks before the danger period, that is, before anopheles begin to fly, and (4) the draining of polders.

Better Control of Rickets

Prof. E. Gorter has directed attention to the fact that, in spite of the discovery of vitamin D and the knowledge of its therapeutic use, the occurrence of rickets has not yet become exceptional in the Netherlands. Certain physicians, he says, do not think that vitamin D is prophylactically indicated and await the first manifestations of rickets, in spite of the fact that even the slight appearance of the disease is dangerous. On the other hand, the contracts of insurance companies do not provide for products containing vitamin D or for cod liver oil prescribed for nurslings. Nor are all infants duly examined. Reduction in the price of vitamin D preparations, irradiation of milk and the injection of vitaminized oil are not sufficient. The future must solve the problem.

Food Control

By ministerial decree, all contracts are to be cancelled and replaced by new ones. Eleven provincial commissariats have been created. They are in charge of the local staffs needed to carry out the agricultural measures to be effected. A census has been taken of the live stock and farm products among farmers and depositories of certain products. A bureau for wheat purchases has also been established. Plans have also been made for the transportation and distribution of foodstuffs in the event of hostilities.

The Inventor of Plaster Bandages

A statue is planned for Dr. Anthonius Mathysen, who invented the plaster bandage in the treatment of fractures. In 1855 he read a paper before the Academy of Medicine of Paris in which he explained the technic. It received the gold medal at the Philadelphia World's Exposition twenty-one years later.

Marriages

JESSE TROUSDALE FUNK, Bowling Green, Ky., to Maydelle Johnson Vandiver of Lexington in April.

ROBERT ANDREW HINGSON, Rochester, Minn., to Miss Gussie Dickson of Fitzgerald, Ga., March 2.

OWEN G. McDONALD, Medford, Wis., to Miss Lois Gray of Kankakee, Ill., in Chicago in April.

ALBERT D. FROST, Columbus, Ohio, to Mrs. Martha White Craig of New York in March.

ROBERT C. BERSON, Ripley, Tenn., to Miss Marian Fairbanks Agry of Rye, N. Y., April 13.

GLENN E. STAYER to Miss Marion Henderson, both of Tampa, Fla., at Bradenton in March.

ALFRED SEYMOUR SCHWARTZ to Miss Ellen Jane Freund, both of St. Louis, May 5.

JAMES A. SMITH to Miss Lillian Jamesson, both of Cedar Rapids, Iowa, April 25.

ROBERT J. LEWIS to Miss Marguerite Blackwell, both of Indianapolis, recently.

SHIRLEY CARTER FISK, New York, to Miss Mary Averell Harriman in April.

Deaths

Rufus E. Fort, Nashville, Tenn.; University of Nashville (Tenn.) Medical Department, 1894; member of the Tennessee State Medical Association; fellow, and member of the board of governors from 1915 to 1933, of the American College of Surgeons; vice president and medical director of the National Life and Accident Insurance Company; past president of the state board of health; superintendent and chief surgeon, Nashville General Hospital, from 1893 to 1903 and later visiting gynecologist and abdominal surgeon; visiting surgeon and chairman of the executive committee of the Nashville Protestant Hospital; aged 68; died, March 22, in the Vanderbilt Hospital of coronary occlusion.

Lewis Harvie Taylor * Washington, D. C.; Columbian University Medical Department, Washington, 1903; assistant professor of surgery, George Washington University School of Medicine, from 1906 to 1910; past president of the American Therapeutic Society; served during the World War; formerly attending surgeon on the staff of the George Washington University Hospital and the Casualty Hospital; consulting surgeon to St. Elizabeths Hospital and member of the board of visitors; president and superintendent of the Sibley Memorial Hospital from 1936 to 1940; aged 64; died, March 30, at Chula, Va., of coronary occlusion.

Porter Stiles, Dillwyn, Va.; Jefferson Medical College of Philadelphia, 1915; member of the American Academy of Ophthalmology and Otolaryngology and the American Broncho-Esophagological Association; fellow of the American College of Surgeons; served during the World War; formerly bronchoscopist and laryngologist to the Hillman Hospital, St. Vincent's Hospital and the South Highlands Infirmary and bronchoscopist to the Children's Hospital, Birmingham, Ala.; aged 49; died, March 23, in the Veterans Administration Facility, Kecoughtan.

Zabdiel Boylston Adams * Boston; Harvard Medical School, Boston, 1903; member and in 1929 president of the American Orthopedic Association; formerly instructor of orthopedic surgery at his alma mater and associate in anatomy; served during the World War; at various times on the staffs of the Boston Children's Hospital, Massachusetts General Hospital, Boston and the Lakeville State Sanatorium, Middleboro, Mass.; member of the board of associate editors of the *Journal of Bone and Joint Surgery*; aged 65; died, March 16.

Hugh Halsey, Montclair, N. J.; College of Physicians and Surgeons, Baltimore, 1886; member of the Medical Society of the State of New York; past president of the Associated Physicians of Long Island; for many years health officer of Southampton, N. Y.; aged 75; died, March 21, of heart disease, shock due to fall down the stairs, arthritis and arteriosclerosis.

Joseph Loyd Golly * Rome, N. Y.; Syracuse University College of Medicine, 1908; past president of the Oneida County Medical Society; fellow of the American College of Surgeons; surgeon to the Rome Hospital and Murphy Memorial Hospital; consulting surgeon to the Marcy State Hospital, Marcy, N. Y., and the Rome State School; aged 53; died, March 17.

Harriet L. Doane, Pulaski, N. Y.; Syracuse University College of Medicine, 1896; past president of the Woman's Medical Society of New York; for many years member of the board of visitors of the Marcy (N. Y.) State Hospital; aged 67; died, March 11, of chronic articular rheumatism and fracture of the vertebrae due to a fall.

John Lealand Taylor, Montezuma, Iowa; State University of Iowa College of Medicine, Iowa City, 1902; member of the Iowa State Medical Society; past president of the Poweshiek County Medical Society; county coroner; member of the city council; aged 67; died, March 14, of injuries received in an automobile accident.

Charles Ernest McLean, Toronto, Ont., Canada; M.B., Queen's University Faculty of Medicine, Kingston, 1912, and M.D., 1914; served during the World War; medical health officer for East York township, and county coroner for many years; aged 50; died, March 17, in the Toronto East General Hospital.

Amalie Marie Napier, St. Louis; Barnes Medical College, 1908 and 1909; member of the Missouri State Medical Association; formerly assistant in clinical ophthalmology at the Washington University School of Medicine; aged 73; died, March 16, at the Lutheran Hospital of lobar pneumonia.

Horace Duane Price, Parkersburg, W. Va.; Miami Medical College, Cincinnati, 1882; member of the West Virginia State Medical Association; at one time assistant superintendent of the Spencer (W. Va.) State Hospital; aged 82; died, March 24, of influenza and bronchopneumonia.

Samuel Lorenzo Stevens, Dalton City, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; member of the Illinois State Medical Society; served during the World War; aged 65; died, March 31, of chronic cardiovascular disease.

Edward Jenner Barrett, Sheboygan, Wis.; Cincinnati College of Medicine and Surgery, 1895; member of the State Medical Society of Wisconsin; veteran of the Spanish-American and World wars; aged 70; died, March 9, of coronary embolism and arteriosclerosis.

Sydney Elihu La Van Jr., New Haven, Conn.; University of Arkansas School of Medicine, Little Rock, 1939; aged 25; intern at the Hospital of St. Raphael, where he died, March 5, of pulmonary embolism following acute appendicitis with appendectomy.

George Edward Butler * Fall River, Mass.; Bellevue Hospital Medical College, New York, 1896; served during the World War; on the staffs of the Union, St. Anne's and the Fall River General Hospital; aged 70; died, March 8, of coronary thrombosis.

Laurence Edwin Cooley * Dubuque, Iowa; University of Minnesota Medical School, Minneapolis, 1928; served during the World War; formerly clinical assistant in medicine at Rush Medical College, Chicago; aged 39; died, March 26, of melanoma.

Lida Osborn * Mankato, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1900; on the staffs of the Immanuel and St. Joseph's hospitals; aged 64; died March 11, of arteriosclerosis, hypertension and cerebral hemorrhage.

Frank C. Ainley * Los Angeles; Johns Hopkins University School of Medicine, Baltimore, 1906; fellow of the American College of Surgeons; aged 60; on the staff of the Good Samaritan Hospital, where he died, March 16, of cerebral thrombosis.

Fred Henry Stangl * St. Cloud, Minn.; Rush Medical College, Chicago, 1919; member of the American Society of Clinical Pathologists; aged 46; on the staff of St. Cloud Hospital, where he died, March 19, of subacute bacterial endocarditis.

William Samuel Hayling, Trenton, N. J.; Howard University College of Medicine, Washington, D. C., 1923; aged 55; died, March 19, in the Mercer Hospital of bronchopneumonia following suffocation when his mattress caught fire.

John Lee Grant, Winchester, Va.; George Washington University School of Medicine, Washington, D. C., 1907; formerly a minister; aged 65; died, March 21, in the Memorial Hospital, of cerebral hemorrhage with hemiplegia.

Leonard Fisk Wilbur * Taiku, Shensi, China; Stanford University School of Medicine, San Francisco, 1932; an Associate Fellow of the American Medical Association; medical missionary; aged 33; died, March 24, of typhus.

Selden Talcott Kinney * South Amboy, N. J.; New York Homeopathic Medical College and Flower Hospital, New York, 1911; on the staff of the South Amboy Memorial Hospital; aged 56; died, March 31, of chronic myocarditis.

Henry Aretas Barclay, San Diego, Calif.; Denver and Gross College of Medicine, 1906; member of the California Medical Association; veteran of the Spanish-American and World wars; aged 70; died, January 24.

William Griffin Hoyt, Mount Tremper, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1882; aged 83; died, February 29, of cerebral hemorrhage and arteriosclerosis.

William G. Woodard, Oklahoma City; Vanderbilt University School of Medicine, Nashville, Tenn., 1888; also a drug-gist; formerly member of the state legislature; aged 78; died, March 30, of cerebral hemorrhage.

James Wallace Campbell, Gastonia, N. C.; College of Physicians and Surgeons, Baltimore, 1893; member of the Medical Society of the State of North Carolina; aged 69; died, March 20, of carcinoma of the liver.

Barnett H. Sirott * Perth Amboy, N. J.; Fordham University School of Medicine, New York, 1915; on the staff of the Perth Amboy General Hospital; aged 57; died, March 24, of hypertension and arteriosclerosis.

DEATHS

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Eugene Spencer Clark, Clarkton, N. C.; Medical College of Virginia, Richmond, 1914; member of the Medical Society of the State of North Carolina; aged 51; was killed, March 11, when struck by an automobile.

John Wesley Dixon, Burlington, Iowa; Trinity Medical College, Toronto, Ont., Canada, 1890; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1890; aged 75; died, March 26, of myocarditis.

Josiah S. Wheeler, Tishomingo, Miss.; Hospital College of Medicine, Louisville, 1898; member of the Mississippi State Medical Association; aged 75; died, March 27, of cerebral hemorrhage and hypertension.

Emma L. Braunwarth, Muscatine, Iowa; State University of Iowa College of Medicine, Iowa City, 1881; an Affiliate Fellow of the American Medical Association; aged 81; died, March 1, of lobar pneumonia.

George Burton Wade, Laingsburg, Mich.; Baltimore University School of Medicine, 1892; for many years member of the board of education; aged 76; died, March 28, of angina pectoris and arteriosclerosis.

Vernon Eugene De Grofft, Swedesboro, N. J.; Medico-Chirurgical College of Philadelphia, 1899; formerly mayor; served during the World War; aged 62; died, March 12, in the Cooper Hospital, Camden.

Horace Stokes Zernow, Delray, Fla.; University of Louisville (Ky.) Medical Department, 1908; aged 55; was killed, March 26, when the automobile in which he was driving was struck by a train.

Edward Louis Rohlf, Waterloo, Iowa; Omaha Medical College, 1900; member of the Iowa State Medical Society; served during the World War; aged 71; died, March 6, of cerebral hemorrhage.

Joseph Philip Evans, Chicago; Loyola University School of Medicine, Chicago, 1930; clinical assistant in medicine at his alma mater; aged 38; died, March 21, at Rochester, Minn., of glioma of the brain.

Robert A. Kennedy, Cleveland; Western Reserve University Medical Department, Cleveland, 1888; aged 78; died, March 13, of carcinoma of the lung with metastases to brain and vertebrae.

Singleton Starr Smith, Athens, Ga.; Atlanta Medical College, 1892; member of the Medical Association of Georgia; past president of the Clarke County Medical Society; aged 70; died, February 18.

Harry Henderson Steinmetz, Manila, P. I.; Kentucky University Medical Department, Louisville, 1906; past president of the Philippines Islands Medical Association; aged 61; died, February 28.

Leslie Adams Wilson, Meriden, Conn.; Yale University School of Medicine, New Haven, 1910; on the staff of the Meriden Hospital; aged 53; died, March 15, of coronary thrombosis.

Kenneth Sylvan Launfal Guthrie, Keansburg, N. J.; Medico-Chirurgical College of Philadelphia, 1904; also a clergyman; aged 68; was killed, March 17, when struck by an automobile.

Richard Benbridge Wetherill, La Fayette, Ind.; Jefferson Medical College of Philadelphia, 1883; fellow of the American College of Surgeons; aged 81; died, March 27, of pneumonia.

James George Flynn, Ridgway, Pa.; College of Physicians and Surgeons, Baltimore, 1901; on the staff of the Elk County General Hospital; aged 63; died, March 5, of arteriosclerosis.

Elisha Herman Liston, Nevada, Mo.; Illinois Medical College, Chicago, 1898; member of the Missouri State Medical Association; aged 69; died, March 29, of atrophic cirrhosis of the liver.

Junius Taylor Ireys, Greenville, Miss.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; aged 64; died, March 31, of chronic interstitial nephritis and arteriosclerosis.

Floyd Everest Radcliffe, Bourbon, Ind.; Medical College of Indiana, Indianapolis, 1898; past president of the Marshall County Medical Society; aged 63; died, March 15, of angina pectoris.

Timothy John Moynihan, St. Paul; Minneapolis College of Surgeons, 1906; aged 62; on the staff of the

Francis Marion Tindall, Sunflower, Miss.; University of Virginia Department of Medicine, Charlottesville, 1915; aged 53; died, March 31, in the King's Daughters' Hospital, Greenville.

Jay Gould Keiser, Bexley, Ohio; Cleveland Homeopathic Medical College, 1909; served during the World War; aged 55; died, March 29, of multiple sclerosis and lobar pneumonia.

James Adrian Conlan, Pittston, Pa.; Jefferson Medical College of Philadelphia, 1931; on the staff of the Pittston Hospital; aged 36; was killed, March 26, in an automobile accident.

Austin W. Peppers, Birmingham, Iowa; Barnes Medical College, St. Louis, 1902; member of the Iowa State Medical Society; aged 61; died, March 8, of carcinoma of the prostate.

Charles Clarence Headley, Cambridge, Ohio; Medical College of Virginia, Richmond, 1906; on the staff of the Swan Hospital; aged 61; died, March 28, of cerebral hemorrhage.

Louis Demme Bauer, Philadelphia; Jefferson Medical College of Philadelphia, 1890; veteran of the Spanish-American War; aged 71; died, March 29, of coronary thrombosis.

Martin L. Brookshier, Georgetown, Ill.; Barnes Medical College, St. Louis, 1903; member of the Illinois State Medical Society; aged 62; died, March 22, of chronic asthma.

Julius Hauck, St. Louis; St. Louis University School of Medicine, 1912; member of the Missouri State Medical Association; aged 67; died, March 30, of heart disease.

Michael Pinckney Morrell, St. Louis; University of Virginia Department of Medicine, Charlottesville, 1873; aged 89; died, March 28, in the City Hospital, of uremia.

Gustav Paul Hoffmann, South Orange, N. J.; University of the City of New York Medical Department, 1894; aged 68; died, March 25, of carcinoma of the stomach.

Edwin Price Howell, Dickinson, Texas; Kansas City (Mo.) Homeopathic Medical College, 1899; aged 83; died, February 14, of carcinoma of the cervical glands.

Frank Pattillo Norman, Columbus, Ga.; Atlanta School of Medicine, 1910; member of the Medical Association of Georgia; aged 53; died, March 17, of myocarditis.

Joseph Mazurette Lapierre, Rutland, Vt.; University of Montreal Faculty of Medicine, Montreal, Que., Canada, 1912; aged 55; died in March of pneumonia.

John Paul Peter Rajotte, Sorel, Que., Canada; University of Montreal Faculty of Medicine, Montreal, 1933; aged 33; died, March 19, of granulocytopenia.

Henry William Cox, Hot Springs National Park, Ark.; Bennett Medical College, Chicago, 1911; aged 73; died, March 22, of pulmonary tuberculosis.

William Arthur Garner, Kiron, Iowa; Hahnemann Medical College and Hospital, Chicago, 1905; aged 62; died, March 27, of coronary sclerosis.

Julia Grice Kennelly, Cambridge, Mass.; Woman's Medical College of Pennsylvania, Philadelphia, 1900; aged 71; died, February 9, of heart disease.

Bruce Leon De Witt Cook, Buffalo, N. C.; Jefferson Medical Department, Buffalo, 1898; aged 65; died, March 18, of coronary thrombosis.

Howard Johnson Combs, Elizabeth City, N. C.; Jefferson Medical College of Philadelphia, 1918; aged 45; died, March 30, of pneumonia.

Isaac Rich, New York; Long Island College Hospital, Brooklyn, 1906; aged 63; died, February 4, of pneumonia and diabetes mellitus.

James Harrison Murphy, Kansas City, Mo.; Rush Medical College, Chicago, 1885; aged 77; died, March 10, of uremia and arteriosclerosis.

Everett Mayhew Swift, New York; New York Homeopathic Medical College, New York, 1879; aged 88; died, March 19, of senility.

Moses Haynes, Bingham, Ill.; Missouri Medical College, St. Louis, 1877; aged 90; died, March 16, of intestinal obstruction.

Robert Lee La Rue, Eustace, Texas; Memphis (Tenn.) Hospital Medical College, 1909; aged 70; died, March 20, of pneumonia.

Homer J. Grant, Buffalo, Albany (N. Y.) Medical College, 1892; aged 70; died, March 16, in the Buffalo General Hospital.

Adrien Filion, Montreal, Que., Canada; University of Montreal Faculty of Medicine, 1927; aged 39; died, March 11.

Bureau of Investigation

A "FAT CURE" FRAUD

Mails Are Closed to R. B. Macrorie's Scheme

An individual operating a mail-order "obesity cure" from Davenport, Iowa, under the names Mac Rory and R. B. Macrorie, followed the same tactics that others before him in the same field had employed: He decried all the other treatments and claimed that his was "different." Macrorie sold no "patent medicines" or devices and advocated no exercises, massages, bath salts, "melting creams," "reducing soaps" or the rest of the paraphernalia of the fat-cure quack. What then did he offer? Just diets!

When the Post Office Department looked into his "different" treatment for excess weight it found that he solicited business by advertising in newspapers and periodicals. One of his advertisements read:

NEW Way to Reduce Fat Never FAILS. No drugs, rubs, exercise, baths, or starving. Harmless. Aids health. \$1.00 complete. Every tenth dollar bill refunded. Mac Rory, Box 434, Davenport, Iowa.

Persons who answered Macrorie's advertisements received circulars in which he declared:

All of the OLD [later on in the text he said "Most of the OLD"] methods of getting rid of surplus fat are expensive; many of them are dangerous; none are dependable . . .

In my NEW method there are no drugs, no exercise, no massages, no baths, no weakening diets. The more one eats the quicker one reduces. The layers of fat next the skin and the layers covering the heart and internal organs disappear as the person becomes stronger, healthier, and more active. The fat does not return unless one intentionally puts it back on . . . Nature does the work as one eats heartily. There is no discomfort. Soon one regains the youthful figure without flabbiness and wrinkles. Think of that: The curves, energy, and activity of youth; the pleasures, the affectionate contacts of youth.

My NEW method never fails to remove surplus fat. Not a single person has reported adversely. They removed 75, 100, 125 pounds or more without discomfort or expense, then maintained their figures and gained in health. My NEW method cannot cause illness.

The circular went on to say that the secret would be yours for \$4—in fact, you could obtain it by sending only \$2 at the start and paying the rest "when you have reduced." Macrorie assured you he would not even dun you for it.

Those trusting souls who duly sent the \$2 received a printed sheet entitled "Weight Reduction and Control. Copyright 1938, by R. B. Macrorie." And what did it advise? Reduce by eating more! Not only of lean meats and "all vegetables" but "be sure to eat much starchy food, the more the better," but he also advised:

Do NOT eat the following: Fried things, oils, salad dressings, butter, oleo, cheese, full milk, candy, chocolate, nuts, pies, cake or other pastries, olives, beer.

Apparently Macrorie did not know that "cake or other pastries" are "starchy food"!

There followed many paragraphs of dietetic advice, and finally a statement of what results to expect:

Sample reductions: Male, 70 pounds in 4 months. Girth losses: Waist 10, chest 9, thighs 7, neck 1½, calf 2½ inches, shoes one size smaller. After reduction a gradual return was made to regular method of eating. The gentleman gained, in the following five years, exactly 6 pounds in all. He had no illness during or since.

On the other hand, Macrorie claimed that, if one wished to maintain a certain weight without loss or gain, "quite another method may be used . . . that is to cut down to two meals a day," namely, breakfast at noon and dinner in the evening—"both meals old-fashioned and greasy."

According to the memorandum issued on this case by Judge Vincent M. Miles, Solicitor for the Post Office Department, a chief objection to Macrorie's scheme was that though the man, before selling an individual the "secret," represented that his method involved no rigorous dietary restrictions, nevertheless after the victim had paid over his money he then learned that he was expected to eliminate from his diet "fried things, oils, salad dressings, butter, oleo, cheese, whole milk, candy, chocolate, nuts, pies, cake or other pastries, olives, beer." Furthermore, to obtain "quick" reduction of weight, he must limit himself to two meals a day.

The memorandum also brought out that the expert medical evidence presented had shown that obese persons are of two

principal types—those whose overweight is due to excessive eating, usually but not necessarily accompanied by insufficient exercise, and those whose obesity is caused by disturbances of the endocrine glands. In the first type any substantial reduction in weight can result only from a lowering of the daily food and caloric intake and the ability of the body to burn its accumulated fat. Hence no reduction could be accomplished by following the advice to "eat freely of bread and potatoes" and to "be sure to eat much starchy food, the more the better," nor could a fixed weight "without loss or gain" be uniformly maintained if the two meals a day recommended for this were to be "old fashioned and greasy" and the dinner a "very hearty one," as Macrorie recommended.

Though the second type of obesity—that due to hyperthyroidism—is not controllable by diet but must be treated according to the patient's individual needs, nevertheless it was shown that in at least one instance Macrorie had sold his method on representations that it *would* reduce the weight of a person whose obesity was due to hyperthyroidism.

The medical evidence further brought out that though the Macrorie method would not and could not bring about a reduction of "75, 100, 125 pounds or more," as promised in the literature, such reductions even if accomplished would result not only in flabbiness and wrinkles as the affected tissues underlying the skin were eliminated, but also in lowered strength and vitality, with consequent susceptibility to illness and infections on the part of the subject.

After considering these facts and others that need not be gone into here, the Solicitor found that Macrorie's business was a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, and on his recommendation the Post Office Department issued a fraud order on Sept. 19, 1939, against the names Mac Rory and R. B. Macrorie.

"HERBOLA-HINDU HEALTH HERBS" HOKUM

Post Office Department Finds This a Fraudulent Scheme

Kaleas Chowdhury, also known as Kaelas Choudhury, a native of Calcutta, India, introduced to the public his "Herbola-Indian Health Herbs" and "Eetola." Chowdhury, who is said to have resided in the United States for over thirty years without becoming naturalized, conducted his nostrum business from Gary, Ind., under the high-sounding names Aryan Herb Company and Aryan Herb Tonic Company.

The first government agency to look into the activities of this outfit was the Food and Drug Administration, which seized consignments of Eetola that had been shipped in interstate commerce in May and December 1937. Government chemists reported that their analysis of a specimen showed it to consist essentially of extracts of plant drugs including hydrastis; volatile oils including those of sandalwood and cubeb; balsam copaiba, and water. The government charged that the label fraudulently represented that Eetola would cure chronic gonorrhea, stricture, prostate trouble, bladder and urethral infections, white and yellow discharge, burning urination, pain under the abdomen of men and women, kidney infection and "weak manhood"; and that it was a scientific preparation of tonic efficacy. At the hearing of this case in November 1938, Chowdhury entered a plea of *nolo contendere* and was fined.

Around this time, the Post Office Department also was investigating the outfit and its preparations—Eetola, Herbola and a so-called tea—which were being sold through the mails under representations that they would reduce high blood pressure to normal and overcome numerous other ailments, including kidney and bladder disorders, all kinds of female troubles, lost sexual vigor, rheumatism, stomach and liver complaints, and some other things.

The memorandum on the case, submitted by Hon. Vincent M. Miles, Solicitor for the Post Office, brought out that Chowdhury had started the business in 1928 and had reached the public by means of newspaper and magazine advertisements directed, for instance, toward "men over 30 with burning urine—no pep or

QUERIES AND MINOR NOTES

vigor" or "Sweet Sixteen or Women Up to Fifty, suffering from periodic or constant pains over the ovaries . . ." The "formulas" that Chowdhury was reported to have given for Herbola and Eetola included lists of common herbs too numerous to take up space here. It may be said, however, that they suggested the old "shotgun" type of nostrum.

According to the memorandum, analysis of Herbola by the government chemists showed that, in addition to the ingredients declared by Chowdhury, it contained 14.80 grains of epsom salt per hundred cubic centimeters and that a "tea" sold in connection with it was composed of powdered black haw and watermelon seed.

The Solicitor's memorandum also brought out that expert medical evidence had been presented to show that the various disorders for which Chowdhury's nostrums had been sold were not curable by these laxative and diuretic mixtures, and he recommended that the business be debarred from the use of the mails. Accordingly a fraud order on Sept. 14, 1939, against Aryan Herb Company, Aryan Herb-Tonic Company, Aryan-Herb Tonics Company, Miss Stuart, Miss R. Stuart, R. Stuart, R. Stuart, Secretary, and their officers and agents as such—but the name of Kaleas Chowdhury was not included!

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

SWIMMING POOLS

To the Editor:—We are endeavoring to obtain a municipal swimming pool in our community and there seems to be some opposition from the point of view of health. Is this opposition justifiable? What methods of purification are used in modern pools? Which is the best? How effective are they? What is the possibility of transmitting disease, including venereal disease? How can it best be avoided?

John T. Hecker, M.D., Cedar Rapids, Iowa.

ANSWER.—The modern swimming pool with proper management and operation affords as safe and sanitary a place to swim as can be found anywhere. Sanitation of the modern concrete or tile swimming pool is based on the same principle as sanitation of the supply of drinking water for cities which have a water supply that is originally polluted. This consists of filtration through a set of pressure or gravity filter tanks and treatment of the water with the proper amount of chlorine or chloramine, which is practically nonirritating to the eyes, ammonia or both. The use of chlorine plus ammonia forms renders the chlorine more stable in the water when exposed to the sun and air, tends to prevent the growth of algae and permits the use of smaller amounts of chlorine in the water. The water in the modern pool can be kept at drinking water standards of purity. Purification of the water may also be accomplished by the use of sodium hypochlorite. Purification by use of ultraviolet rays, ozone or a silver electrolytic system were methods used in the past, the effectiveness of which has been the subject of debate. It is important that a municipal pool be under proper management and that simple regulations regarding hygiene, the use of foot baths of sodium hypochlorite to prevent development of ringworm, athlete's foot, and the like be employed. (Montgomery and Safety, *Proc. Staff Meet., Mayo Clin.* 11:561 [Sept. 2] 1936, and the annual manuals issued by *Beach and Pool* magazine, which gives rules and regulations regarding swimming pools, instruction and maintenance of pools, and other information.)

There is no danger of transmission of a venereal disease in the pool. Proper sanitation of toilets is obviously necessary. Certain individuals may develop infection in the ear through forcing bacteria up the eustachian tube. These individuals or those with open ear drums have to be warned against the danger of diving. No epidemics of respiratory infections appear to have been reported from a properly designed and operated municipal pool.

GOLD SODIUM THIOSULFATE IN ARTHRITIS

To the Editor:—Please advise me as to the use of gold sodium thiosulfate in the treatment of arthritis. Is there any particular brand or preparation on the market that is considered the best to use? M.D., Illinois.

ANSWER.—Many physicians in France believe that chronic arthritis is etiologically related to tuberculosis, a view which is not accepted in this country. Working on this assumption Forestier in 1929 began to use gold salts in the treatment of atrophic (rheumatoid, infectious, proliferative) arthritis. In 1934 he reported that from 70 to 80 per cent of 500 patients treated had been distinctly improved. Since then many other workers, particularly in France and England, have reported good results in a significant percentage of cases. The use of gold salts (chrysotherapy) has been called "the best single form of treatment now available," but its great drawback is that toxic reactions to the gold are common, occasionally serious or even fatal.

Many preparations have been used. No preparation is notably safer than others. Some of the preparations are given intramuscularly, others intravenously; oral preparations are ineffective. Injections generally are given every four to seven days; the dose is increased gradually from an initial dose of about 10 or 15 mg. to a maximal single dose of 50 or 100 mg. The usual total dosage for one course is 1 Gm. One course is inadequate. Two or more courses generally are given, with an interval of six to twelve weeks between. The scheme of Ellman and Lawrence is somewhat different from that used by others: the size of succeeding doses and the length of each course were determined not more or less arbitrarily, as in other schemes, but by the patient's changing clinical condition and sedimentation rate.

Toxic reactions are unfortunately frequent and are varied in type. Since most of the gold is excreted by the kidneys and the rest by the intestine, toxic reactions especially affect the kidneys, stomach and intestine. The following reactions may occur: temporary increase in articular pain, rashes of various sorts, papular eruptions, edema, even exfoliative dermatitis, stomatitis, conjunctivitis, iritis, "gold bronchitis," gastro-enteritis of variable degrees including hepatitis with jaundice, albuminuria, occasionally acute nephritis, and various psychic and neurologic reactions. Most important of all are the effects on the hematopoietic system: reduction in number of leukocytes and platelets, aplastic anemia, granulocytopenia and purpura and hemorrhagic, any of which may be fatal.

Of patients treated with gold salts about 50 per cent or more do not have toxic reactions. Toxic reactions of about 15 per cent of patients given gold salts are mild, those of about 10 to 20 per cent are moderately severe, of about 6 per cent severe but not fatal, and 1 per cent or less have fatal reactions. Several physicians have treated fifty or sixty patients or less without a fatality, but those who have treated larger numbers (from seventy to 700) have reported fatal reactions in about 1 (0.8 to 1.4) per cent. To date no method for preventing or anticipating these toxic reactions has become established. Because of the type of reactions induced, chrysotherapy is contraindicated for patients with gross renal or hepatic disease, colitis, pregnancy, eczema, severe anemia or hemorrhagic tendencies, previous purpura or granulocytopenia, severe diabetes, hypertension or congestive heart failure. Old age, arteriosclerosis, moderate hypertension and psoriasis have not been considered contraindications. To discover the first signs of toxemia, careful examination of the patient: urinalysis, differential blood counts and sedimentation rates. Recently Secher claimed that severe toxic reactions can be prevented or controlled by the use of large doses of vitamins A, B and C; his claims have not yet been substantiated.

Are the results worth the risk? British and continental workers believe they are; most American workers to date are inclined to believe they are not. It is agreed that gold salts are not effective in rheumatic fever, fibrositis, gout or hypertrophic (osteo-) arthritis. Their use in ankylosing spondylitis is considered valueless by most workers, of some value by others. Cures have been accomplished in an average of 10 per cent of foreign cases, in from 0 to 6 per cent of American cases. In addition, great relief has been afforded in from 50 to 70 per cent of foreign cases in which two or more courses of treatment were given, but notable relief has been noted in only about 10 to 35 per cent of American cases.

Because of these results and the risks involved, physicians should adopt a conservative attitude toward chrysotherapy for atrophic arthritis. The cause of relief is unknown and the method is empirical. It probably should be considered too dangerous for general use but worth trying in carefully selected cases. It should not be given to patients whose atrophic arthritis is obviously becoming inactive. It should be given only to those

patients whose disease is sufficiently severe and progressive to warrant taking the risk, to those unrelieved by an intensive trial, for a reasonable period, of more conservative methods, and to those who, with their close relatives, understand the risks involved and are psychologically prepared to take them and to share the physician's responsibility. Above all it should be applied only by physicians who have thoroughly familiarized themselves with the chief reports on chrysotherapy in order to learn the details necessary for its proper application. The Council on Pharmacy and Chemistry has not accepted any gold preparations for use in the treatment of either tuberculosis or arthritis.

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SYNCOPE

To the Editor:—Is there any connection between gastric upset and syncope? I had a patient, a man aged 29, who was a moderate indulger in alcohol and on two occasions while out for the evening after consuming 3 ounces of whisky, followed by a medium sized meal, felt ill and on going to the bathroom fainted. This was a bit unusual, for often this patient could take from one-half to 1½ pints of alcohol in an evening and suffer no ill effects. I might add that on the two occasions when syncope took place the patient had had a hard day previous to going out and was quite fatigued. What interests me most in this case is the possibility of the existence of some reflex phenomenon between the gastrointestinal tract and the central nervous system which would account for these attacks of syncope.

M.D., Moine.

ANSWER.—There are at least three mechanisms which may act, either independently or in combination, to produce syncope: (1) reduction of the heart rate, (2) reduction of the general mean arterial pressure and (3) localized reduction of blood flow to the cerebrum. The presence of viscerocardiac reflexes has been demonstrated both in experimental animals and in man. Bachrach, Bonnet and Richard (*Ann. Physiol. Physicochem. biol.* 7:192, 1931) and K. Wiggers (*Arch. néerl. de physiol.* 22:558 [Dec.] 1937) produced cardiac inhibition by excitation of abdominal viscera. Tournade and Rocchiscani (*Compt. rend. Soc. de biol.* 115:1637, 1939) reported a reflex hypotension from distention of the stomach. Bettman and Rubinfeld (*Ann. Heart J.* 10:550 [April] 1935) reported heart rate changes occurring in man when the gallbladder was manipulated during cholecystectomy. The production of syncope, however, through gastric reflexes has not been widely discussed in the literature. Weiss and Barker (*Medicine* 12:297 [Sept.] 1933) in their study of the syncope produced by the carotid sinus reflex, suggest the possibility that there may be an extensive afferent vasodepressor mechanism in the body which may use the same efferent pathway as the carotid sinus reflex. Lewis (*Brit. M. J.* 1:873 [May 14] 1932) also suggested that the syncopal mechanism "can be set in motion through many afferent channels other than those at present recognized by physiology." The former authors quoted the experimental work of Hatcher and Weiss (*J. Pharmacol. & Exper. Therap.* 22:139 [Oct.] 1923) in support of their statement. These experiments indicated that (1) in the medullary reflex of nausea and vomiting a number of the same efferent pathways are involved as in the carotid sinus reflex, and (2) the same drug applied over the same area of the medulla produced different types of motor effects, depending on the state of the body. Crittenden, in Ivy's laboratory, gave apomorphine to unanesthetized animals and found (*Am. J. Physiol.*, Proc. 101:26, 1932) that the heart rate was increased prior to the onset of vomiting but that just before and during the vomiting act the heart rate was markedly decreased. Other suggestive evidence is that of Gammon and Bronk (*Am. J. Physiol.* 114:77 [Dec.] 1935), who report that the pacinian corpuscles lying adjacent to the mesenteric arteries discharge impulses in a manner somewhat resembling the carotid sinus end organs.

The data presented suggest that under certain circumstances reflexes from the abdominal viscera might operate to produce syncope. It is advisable, however, in a case of this kind to make a careful search for other conditions known to produce fainting spells, notably emotional upset, carotid sinus reflex, postural hypotension, neurocirculatory asthenia and petit mal.

LONG CONTINUED BILIARY OBSTRUCTION

To the Editor:—About one year ago I performed a cholecystectomy on a white woman aged 35, following which she had an uneventful convalescence. About three months ago she became jaundiced and as time went on the icterus became progressively deeper and severe pruritus occurred. The liver was considerably enlarged and somewhat tender, and choloria and acholic stools seemed to indicate that an obstructive type of jaundice was present. After no improvement with conservative management I decided that surgery would be necessary for relief of an apparent extrahepatic biliary duct obstruction. One month ago a laparotomy was performed, and the common bile duct and hepatic duct were found enmeshed in adhesions and stenosed. The liver was found deeply bile stained and enlarged, and aspiration from the proximal portion of the hepatic ducts revealed a pale yellow fluid (white bile). A choledochotomy with insertion of a T tube into the ducts was performed. The patient has made a good convalescence from the operation and during the first two weeks drained considerable bile bath through and around the tube from a stab wound in the flank. At present there is just scant drainage of still watery appearing bile. The stools show slight color, and less bile is present in the urine. The liver enlargement has gone down considerably. How much longer should I allow the tube to remain in situ, or what criteria should guide me in deciding on its removal? Also I would appreciate any suggestions as to the technic of removal of the tube other than simply teasing it out.

J. M. Spatz, M.D., Glasgow, Mont.

ANSWER.—The long continued biliary obstruction has undoubtedly caused considerable liver damage, and the persistence of "a scant drainage of still watery appearing bile" suggests that there has not yet been complete recovery. Presumably at the time of the second operation the stenosis of the common duct was relieved and a free passage way into the duodenum secured. It would appear wise to leave the T tube in place for three or four months or until a free flow of normal appearing bile appears at the tube or the stools become normal in color and composition. The tube may then be clamped shut for several days and the patient observed for the reappearance of jaundice and the urine and stools examined for bile. In the interval the patient should be given orally a preparation of bile salts and vitamin K.

HAWTHORNE BERRY AND HYPERTENSION

To the Editor:—What information can you give me in relation to the use of tincture of hawthorne from the hawthorne berry in the treatment of high blood pressure? Is it true that this preparation is efficient in hypertension? Has any work been done recently in this connection and can you give me any references?

M.D., Illinois.

To the Editor:—Could you furnish information relative to the use of hawthorne berries (*Crataegus*) for the treatment of hypertension? I would appreciate any literature that may be available on the subject.

M.D., New Jersey.

ANSWER.—Tincture of hawthorne (*Crataegus oxyacantha*) is not recognized as a pharmacologically active preparation either by standard textbooks on pharmacology or by the Council on Pharmacy and Chemistry of the American Medical Association. A recent paper (Graham, J. D. P.: *Brit. M. J.* 2:951 [Nov. 11] 1939) reports "encouraging" therapeutic results in ten cases of hypertensive disease followed for about six weeks. This is far too short a time and far too small a series of cases to warrant anything more than some hope that there may be possibilities with this preparation. Unfortunately this report has received some premature newspaper publicity through a health column. Graham himself is conservative in his conclusions. The tincture of *crataegus* had no effect in slowing the cardiac rate; it caused no diuresis in the decompensated patients. Large doses were ineffective on the normal arterial tension. There was no evidence of cumulative action; after cessation of medication the arterial tension returned to the previous levels. It was reported, however, that during the period of exhibition of the drug the arterial tension was maintained at a considerably lower average level than either before or after the medication. Despite this encouraging preliminary report it must be emphasized that a great deal more work and extensive clinical studies are necessary before the efficacy of such a drug can be evaluated. One should be skeptical, for there has been a long procession of medicaments advocated for the management of hypertensive disease. The usual sequence is that glowing preliminary reports are soon followed by more critical appraisals and with studies of better controlled clinical series it finally appears that the preparation is relatively useless. The iodides, preparations of mistletoe and of garlic, cucurbititrin (watermelon seed glucoside, see report of the Council on Pharmacy and Chemistry,

QUERIES AND MINOR NOTES

THE JOURNAL, April 5, 1930, p. 1067), cobalt salts, calcium preparations and certain tissue extracts are among the many preparations tried, found wanting and finally discarded. It must not be forgotten that the intense enthusiasm of the original "discoverer" is often contagious. The psychosomatic factors of confidence in a "new discovery" may be a potent factor in inducing transient and misleading remissions, particularly in hypertensive disease, in which the psychosomatic factors loom large. Drugs are at best but auxiliaries in the management of hypertensive disease. Individualization is essential and the emotional and hereditary factors, together with the habits of the individual, usually need attention.

RADIATION AND ENDOCRINE GLANDS

To the Editor:—Several of my patients have been visiting New York and having treatments by endocrine experts, receiving among other things treatment with "gamma rays," which are generated by an x-ray machine or by radium. I understand that they are supposed to be a gland stimulant. I have been unable, either from my own knowledge or from other sources, to construe properly the meaning of this term and to define it.

G. F. Norman, M.D., San Francisco.

ANSWER.—True gamma rays are produced only by radium or radon. If the rays used in the treatment of the patients were not generated by radium they were not true gamma rays. From the information given, it would be impossible to guess what kind of rays they were or if they were rays at all. The only form of endocrine treatment involving the use of radiation therapy which has been used to any extent is for the relief of certain menstrual disorders. It is claimed that x-ray irradiation is of value in certain types of amenorrhea and menorrhagia. This treatment is not accepted by most gynecologists, although it is used by some. X-ray irradiation of the thyroid has a certain doubtful value; all other forms of irradiation of the pituitary are questionable. This includes irradiation of the pituitary in diabetes mellitus and of the adrenal for hypertension. The rare condition of basophilic adenoma of the pituitary is said to respond to x-ray irradiation with fair results. Many authorities consider that irradiation has only a destructive action on endocrine glands, not a stimulating one.

FAILURE OF EJACULATION AFTER PROSTATIC RESECTION

To the Editor:—A man aged 63, who has been well with a normal sexual life, had a transurethral resection of the prostate. The operation was entirely successful in the relief of the obstruction and control of the bladder, with apparently normal sexual desire as before operation. There has been entire absence of seminal fluid with ejaculation since. Is this the rule? If so, why. If not, what are your suggestions as to treatment?

M.D., Michigan.

ANSWER.—The result obtained in this case appears perfect—that is, the complete relief of obstruction. The patient has perfect control of the bladder and normal sexual desire. The entire absence of seminal fluid with ejaculation since the operation is not the rule; it is a rare exception. This may be due to several things: First, it is possible that the seminal fluid regurgitates back into the bladder and then evacuates with the urine. The way to determine whether or not this phenomenon is present is to have the patient bring in some urine after sexual intercourse. If this phenomenon does not occur, one must assume that occlusion of the ejaculatory ducts has taken place. This occurs in a small number of cases and it does no harm. There is no treatment to overcome this stenosis. In view of the fact that it does no harm, no treatment is indicated.

SMALL BREASTS

To the Editor:—In the case of a single girl in the early twenties with normal menstruation and normal development except for small breasts, would treatment with endocrine products such as progynon be of any value? Further development of the breast? Would massage be of any value? Further development is desired merely for cosmetic reasons, to look better in her clothes and so on. Do you have any other suggestions?

M.D., Iowa.

ANSWER.—One might ask whether this girl's condition is hereditary. If so, it will be difficult to help her. If her menstruation is normal there is evidence that her ovaries are secreting sufficient estrogenic hormone to develop the breasts. There are some women with small breasts who seemingly have normal glandular function. Because the breasts are small at present is no reason that they will not function normally if she should marry and become a mother. However, her present source of worry is the smallness of the breasts.

Since the girl's menstruation is normal, it is questionable whether estrogenic substance will help the condition, for she should be receiving a sufficient supply from her own ovaries, or menstruation would not be normal. If she is given the dosages of estrogenic substance mentioned, her menstrual cycle may be disturbed. If the breasts should develop under estrogenic stimulation there is no assurance that they will not revert to their original condition within thirty days after it is discontinued. The firmness and prominence of the breasts in a girl depend on the development of the gland trees and on the alveoli; massage will not develop these.

INJURY TO NERVES AT ELBOW

To the Editor:—After limited experience with nerve injuries in the upper extremity I wish to take exception to the answer to a question on this subject in The Journal, January 27, page 346. The picture so adequately described is typical of ulnar nerve paralysis without associated damage to the radial or median nerves. The muscles supplied by the ulnar nerve are the flexor carpi ulnaris, flexor digitorum profundus to the fourth and fifth fingers and all the intrinsic muscles of the hand except the abductor pollicis brevis, opponens pollicis, lateral head of the hand and the two lateral lumbricals (second and third fingers). In the case described the paralysis of two hours' duration may have been due to the immediate pain. The atrophy of the ulnar border and back of the hand is due to paralysis of the abductor, flexor brevis and opponens digiti quinti and of all the palm as well. This explains the prominence of the bones and also the atrophy between the first and second metacarpals. The extension at the metacarpophalangeal joints and flexion at the interphalangeal joints, fourth and fifth fingers, without joint contracture, is due to paralysis of the extensor tendons and which flex the proximal phalanx on the metacarpal and insert in the extensor communis digitorum on the normal hand the action of the fourth and fifth fingers is opposed by the flexor profundus digitorum (medial half), the palmar and dorsal interossei and the lumbricals (medial half) supplied by the ulnar nerve. In a lesion of the ulnar, therefore, the opposition of the extensor communis digitorum is reduced to only the necessary antagonistic action, and the result—strong enough to supply the necessary antagonistic action, and the result—ing unopposed action of the extensor communis digitorum of the fourth hyperextension of the metacarpophalangeal joints of these digits. In an ulnar nerve lesion, extension of the interphalangeal joints but and fifth digits is feeble, because of the paralysis of the intrinsic palmar interossei and lumbricals affecting those digits. These intrinsic muscles are not only strong flexors of the metacarpophalangeal joints but by reason of their insertion into the aponeurosis of the extensor communis digitorum they are also extensors of the interphalangeal joints of the hand. This ability is well demonstrated in a complete lesion of the radial nerve when the patient is able to extend the interosseal and part or all of the fingers completely. Severance of the radial nerve or extensor tendons frequently undiagnosed because the interosseal and part or all of the lumbricals are still intact and partial extension of the second to fifth fingers inclusive is still possible. Injury on the posterior aspect of the medial epicondyle could not readily cause damage to the radial nerve, which passes anterior to the elbow or to the radial nerve, which passes anterior to the lateral condyle. If a roentgenogram has not been taken, one should be made of the elbows for comparison to determine whether the epicondyle was fractured and resulted in nonunion or malunion. I agree that the ulnar nerve should be explored and repaired and whether severed or intact it should be transplanted anterior to the epicondyle. If the epicondyle was fractured, the fragment should be removed. The radial nerve should not be explored unless there is other definite sensory or motor impairment.

Leonard T. Peterson, M.D., Washington, D. C.
Captain, M. C., U. S. Army.

VISUAL SCREENING TESTS AND VISION CHARTS

To the Editor:—Referring to the query of Dr. N. P. Andrews, Manitowoc, Wis., in The Journal, March 16, concerning visual screening tests and vision charts used in public schools with special reference to the Keystone telebinocular and Betts charts, we have been using the telebinocular in the Santa Monica, Calif., City Schools, of which I happen to be the Director of Health, for the past year and find it a very useful adjunct to our armamentarium. Our experience does not entirely coincide with the statements in the published answer to Dr. Andrews' query. The telebinocular is not used as a routine by the school nurses. We have an especially trained operator who uses it only in special cases that are referred to the office of the director. There is no attempt made to make any diagnosis whatever. The child either passes the tests or does not coincide with the parents as advised by us that we believe the child needs further examination by an eye specialist. The statement that we felt needed further examination by an eye specialist (that we felt needed further examination by an eye specialist) is in getting proper cooperation from our experience, as out of hundreds of children tested there have been comparatively few (less than 25 per cent) in which we have made examination. Our chief difficulty is in getting proper cooperation from nonmedical and so-called "cultist" eye specialists, who know nothing about the instrument. In practically every case in which we have made tests of children who have been seen by a competent ophthalmologist, our decisions have been corroborated that further testing was needed. We are in the Health Department of the Santa Monica City Schools operate very closely in cooperation with the local branch of the Los Angeles County Medical Association.

Paul R. Burroughs, M.D., Santa Monica, Calif.
Director of Health.

Medical Examinations and Licensure

Book Notices

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, May 11, page 1952.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II, June 17-19. Part III, June or July, to be given in medical centers having five or more candidates desiring to take the examination. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: December 1940. In view of the small number of applications received before March 1, there will be no examination at New York, June 10-14. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: Written. October 21. Applications must be on file by September 1. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: General oral and pathologic examinations (Part II), (Group B) will be conducted in Atlantic City, N. J., June 7-10. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Oral. New York, June 8-10; Cleveland, Oct. 5. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, June 3-5. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: New York, June 10-11. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: Memphis, Tenn., Nov. 17, preceding the annual meeting of the American Academy of Pediatrics. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF RADIOLOGY: New York, June 7-10. Sec., Dr. Byrl R. Kirklin, 102-110 Second Ave., Rochester, Minn.

Pennsylvania January Report

Dr. James A. Newpher, director, State Board of Medical Education and Licensure, reports the examination held at Philadelphia, Jan. 2-6, 1940. Thirty-one candidates were examined, twenty-eight of whom passed and three failed. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
University of Arkansas School of Medicine.....	(1938)		1
Northwestern University Medical School.....	(1938)*		1
Louisiana State University School of Medicine.....	(1939)		1
University of Michigan Medical School.....	(1937)		1
Washington University School of Medicine.....	(1922)		1
Cornell University Medical College.....	(1938)		1
New York University College of Medicine.....	(1937)		1
University of Rochester School of Medicine.....	(1937)		1
Hahnemann Medical College and Hospital of Philadelphia.....	(1938)* (1938)		2
Jefferson Medical College of Philadelphia.....	(1938)		1
Temple University School of Medicine.....			2
University of Pennsylvania School of Medicine.....	(1938)		3
Woman's Medical College of Pennsylvania.....	(1936), (1937)		2
McGill University Faculty of Medicine.....	(1938)*		1
Medizinische Fakultät der Universität, Wien.....	(1937, 2)		2
Deutsche Universität Medizinische Fakultät, Prag.....	(1922), (1937)		2
Université de Paris Faculté de Médecine.....	(1938)*		1
Friedrich-Alexanders-Universität Medizinische Fakultät, Erlangen.....	(1937)		1
Georg August-Universität Medizinische Fakultät, Göttingen.....	(1935)		1
Universiteit van Amsterdam Geneeskunde Faculteit.....	(1933)		1
Universität Bern Medizinische Fakultät.....	(1938)		1
School	FAILED	Year Grad.	Number Failed
Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultása, Budapest.....	(1915)		1
Regia Università degli Studi di Palermo. Facoltà di Medicina e Chirurgia.....	(1937, 2)		1
Regia Università degli Studi di Messina. Facoltà di Medicina e Chirurgia.....	(1937)		1

Five physicians were licensed by reciprocity and three physicians were licensed by endorsement from January 2 through January 19. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Maryland School of Medicine and College of Physicians and Surgeons.....	(1937)		Idaho
University of Michigan Medical School.....	(1933), (1936, 2)		Michigan
Hahnemann Medical College and Hospital of Philadelphia.....	(1938)		Maine
School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Rush Medical College.....	(1924) N. B. M. Ex.		
Harvard Medical School.....	(1927) N. B. M. Ex.		
University of Michigan Medical School.....	(1932) N. B. M. Ex.		

* Licenses have not been issued.

A Text-Book of Occupational Diseases of the Skin. By Louis Schwartz, M.D., Medical Director, United States Public Health Service, in Charge of Dermatoses Investigations, Washington, D. C., and Louis Tullpan, M.D., Clinical Professor of Dermatology and Syphilology, New York University College of Medicine, New York City. Cloth. Price, \$10. Pp. 199, with 116 illustrations. Philadelphia: Lea & Febiger, 1939.

The authors have devoted their careers to the subject of this work; hence they offer the most comprehensive volume thus far made available in this field. After a historical introduction, which indicates that Paracelsus was the first to write about occupational diseases, they take the reader to modern workmen's compensation laws. Next comes a consideration of the various causes of occupational dermatoses, diagnoses and some general considerations on methods of treatment. Succeeding chapters are devoted to innumerable industries and chemical substances, parasites and occupations associated with disturbances of the skin. Each chapter is followed by a comprehensive bibliography, and the illustrations are excellently chosen and well reproduced. The volume is a necessary item in the library of every dermatologist and worker in the field of industrial medicine.

Beyond the Clinical Frontiers: A Psychiatrist Views Crowd Behavior. By Edward A. Strecker, A.M., Sc.D., M.D., Professor of Psychiatry in the Undergraduate and Graduate Schools of Medicine, University of Pennsylvania, Philadelphia. Cloth. Price, \$2. Pp. 210. New York: W. W. Norton & Company, Inc., 1940.

This volume presents the 1939 Salmon Memorial Lectures, the author being thus stamped as a leading psychiatrist. Dr. Strecker, as professor of psychiatry in the University of Pennsylvania, has established an enviable reputation as a sound, clear and progressive practitioner, thinker and writer. His approach to the problem is indicated by the subtitle, "A Psychiatrist Views Crowd Behavior"; that is, he takes psychiatry "beyond the clinical frontiers" and indicates how mental hygiene may develop defenses against the destructive behavior of the mob.

Just as the individual psychotic evades reality by withdrawal, rationalization, projection, aggression, repression, substitution and symbolization, so do we find similar mechanisms at work in various mob and "movement" activities. As symbolization is used by the psychotic for the purpose of psychic economy, so does the leader of the mob depend on the same principle. By means of the symbol exhibited before the mob, the annoyingly small i becomes the gloriously important, though unreal, WE. As the individual schizophrenic withdraws to his corner, so does the crowd engage in a "sit-down" strike. As the manic gives vent to his aggressiveness, so do nations go to war. And just as restraint provokes the manic to greater aggressiveness, so, perhaps, does the presence of armaments provoke to war.

What remedies may we expect? A more widespread and intensive application of mental hygiene principles in education—encouragement to face reality, a comprehension of the emotional motivation of conduct, recognition of the ominous power of the symbol, for instance. "There are not enough vistas which encourage thoughtfulness. First, the capacity to think, then a few quiet places in which to think, and finally some worthwhile things to think about—this would constitute the prescription of mental hygiene" (p. 182). And again (p. 197), "Environments will have to shift the frontiers of their realities. This is the equivalent of saying that individuals must be given better opportunities of acquiring, at least in elementary terms, self understanding and self development, and then they will be able to find self honesty. Once many individuals become capable of inner sincerity, then as collections of units they will constitute a society which will be honest with its members."

In this troubled world, where wars and rumors of wars daily insult our ears, this book should be read by every forward-looking citizen who has any hope (and most have) that some time in the future we may develop a better formula by which man can live in peace and mutual respect with his fellow man. This book, by indicating in clear language some of the accepted facts as to the wellsprings of conduct, normal and abnormal, points the way.

Handbook of Skin Diseases. By Leon Hugh Warren, B.A., M.D., M.Sc., Acting Assistant Surgeon (Dermatology) in the Office of Dermatoses Investigations of the United States Public Health Service. With a foreword by Frederick D. Weldman, M.D. Fabrikoid. Price, \$3.50. Pp. 321. New York & London: Paul B. Hoeber, Inc., 1940.

This book should be a useful adjunct to the dermatologist, particularly the dermatologist engaged in teaching. For it is, in effect, a collection of lecturers' notes brought down to date. It professes to be no more than a handbook, and the author has been faithful to his assignment. Forty-five pages are given to general principles of therapy. This section is especially well balanced, emphasizing the principles of therapy yet furnishing numerous workable prescription formulas, many of them with a thought to cosmetic properties. In the synopsis of skin diseases which makes up the remainder of the book, no attempt is made to adhere to any of the orthodox dermatologic classifications; rather the diseases are arranged in alphabetical order. Only their salient features are listed, both clinical and histopathologic; conditions to be differentiated are named, and a suitable line of treatment is outlined. Synonyms, eponyms and etymologic facts are given for each disease. There is a vast amount of material, with information that is current, and, to include it all in a small volume, the author has used a brief, often one word, telegraphic style. Inevitably it seems, errors creep into all books. Eczema, described as a protein disease, was probably meant to read a protean disease; and the paragraphs on dermatitis exfoliativa failed to mention the lymphoblastic type. As a handbook the volume is well done, especially the section on therapy. Because it is a handbook it will be of little value to the novice in dermatology. But for the teacher of dermatology, the practicing dermatologist and even for the student who will use it as a complement to his lecture notes or to a larger textbook, this little handbook should find a place.

Government and Economic Life: Development and Current Issues of American Public Policy. Volume I. By Leverett S. Lyon, Myron W. Watkins and Victor Abramson. Cloth. Price, \$3. Pp. 519. Washington, D. C.: Brookings Institution, 1939.

This is one of the best contributions of the Brookings Institution. It provides an analysis of our economic life and its relation to the framework of our government. It then discusses relationships of government to private enterprise from the point of view of implementation and regulation. Chapters of especial interest at this time are, of course, those dealing with attempts to regulate monopoly and control competition. The volume provides vast numbers of references to the decisions of the courts with regard to attempts to adjust disputes between labor and industry and between various labor organizations and various industries. Somehow the philosophic consideration seems to fall short, however, in recognizing adequately the dual function of organizations of trades and industries for raising standards and benefiting the public, as well as the possibility that they may interfere with unlimited competition. Especially interesting also, in the light of modern activities, are those chapters of the work which take up the establishment of grading and standards in commerce. Here there is provided also a consideration of the new food and drug laws and the Wheeler-Lea act. Thus it is recognized that such standards must be established for the benefit of the public, but it seems to be urged that it is for the government alone to establish standards rather than to have these developed through voluntary agencies.

Sex and Life: Forty Years of Biological and Medical Experiments. By Eugen Steinach, M.D., Ph.D. The Scientific Values Adapted to the Lay Reader by Josef Loebel, M.D. Cloth. Price, \$3.75. Pp. 252, with 67 illustrations. New York: Viking Press, 1940.

Apparently the publishers have been after Professor Steinach to write a popularization of his work. Succumbing to their solicitation, he provides a volume of promotional literature, fully illustrated with his photographs in many different aspects. It is his concept that sex rules life's shape and course. It is also his belief that his own investigations have been largely responsible for proving this concept, and the case reports published by some of his disciples who are in practice have not tended to mitigate in the slightest his belief. Thus for many years he and his disciples promoted the idea that the tying off of the vas would hold in the body the male and female sex hormones and would bring about a hypertrophy of the interstitial cells in which, they insisted, the sex hormones were elaborated. For-

tunately it is now possible to secure these hormones in chemical form so that they may be injected into the body, which makes the surgical operation unnecessary.

When scientists develop these extraordinary concepts they are likely to forget many of the controls that are necessary in the evaluation of results. Thus Dr. Steinach has forgotten that surgical operation enhances the power of suggestion and that few human activities are more susceptible to psychologic suggestion than are those of a sexual character.

In his concluding chapter he promotes the idea that a mixture of female and male hormones lowers high blood pressure, but the evidence in this regard is not convincing.

An Introduction to Animal Biology. By John B. Parker, Ph.D., Professor of Biology, The Catholic University of America, Washington, D. C., and John J. Clarke, Ph.D., Assistant Professor of Biology, The Catholic University of America. Cloth. Price, \$3.75. Pp. 503, with 163 illustrations. St. Louis: C. V. Mosby Company, 1939.

The authors have presented a carefully selected and orderly arranged mass of material. The aim to make the work "progressive, comparative and cumulative" has been kept in mind. The appendix and the glossary should prove of aid to the student who is beginning his study of the biologic sciences. Practical applications have been presented, as in the discussion of the relationship of insects to man and his activities and in the brief consideration of the pathogenic protozoa. The pre-medical student will find much in this textbook to stimulate his further interest in biology.

Nomenclature and Criteria for Diagnosis of Diseases of the Heart. By the Criteria Committee of the New York Heart Association. Fourth edition. Cloth. Pp. 282, with 52 illustrations. New York: New York Tuberculosis & Health Association, Inc., 1939.

This book deals first with the nomenclature and classification of heart disease and is supplemented by a section containing discussions of criteria for diagnosis, including the role of electrocardiograms and roentgenology. The book includes also an outline for the pathologic diagnosis of cardiovascular diseases and anomalies. The section on nomenclature follows in general that employed by the Standard Classified Nomenclature of Disease. The discussions on interpretation of roentgenograms of the heart and electrocardiograms are simple and constitute an invaluable guide to all clinicians dealing with heart disease. The book is well printed and the illustrations are clear. It should be in the hands of every cardiologist and internist and would prove useful to many others whose work with heart diseases is less specialized.

Infections of the Hand. By Lionel R. Filfield, F.R.C.S. Second edition by Patrick Clarkson, F.R.C.S., Surgical Tutor, Guy's Hospital, London. Cloth. Price, \$3.25. Pp. 167, with 57 illustrations. New York: Paul B. Hoeber, Inc., 1939.

This is an admirable and concise presentation of the subject of infections of the hand and should be a helpful guide to students and practitioners. An excellent beginning chapter on the anatomy of the hand is followed by a chapter on prophylaxis of infections and by subsequent chapters—first on the simple infections, then on infections of the tendon sheaths, of the fascial spaces, on osteomyelitis, on lymphangitis and finally by a chapter on prognosis and on infections from the standpoint of workmen's compensation. Both the author and the editor of the new edition acknowledge their obligation to Kanavel and follow his teachings closely. They should be congratulated for the concise and excellent manner in which they have presented this important subject.

Reports on Medical Progress 1939 as Published in the New England Journal of Medicine. Compiled and Edited by Robert N. Nye, M.D. Cloth. Price, \$5. Pp. 562. Boston: Little, Brown & Company, 1940.

For many years the *New England Journal of Medicine* has been publishing reports of progress in various branches of medicine. Such a series was planned for the years 1938 through 1939 covering the specialties as well as general medicine and surgery. Each of the authors was asked to limit his statement to 4,000 words. Following each of the chapters there is a bibliography with references almost wholly limited to the years 1937 and 1938. Thus the reader who wishes to bring himself promptly abreast of current thought in a great many fields will find this a most useful volume. There is an excellent index.

Bureau of Legal Medicine
and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Death from Pneumonia Following Reduction Under Ether of Fracture of Pelvis.—In the course of his employment as a miner, on Feb. 22, 1938, the workman was caught under a fall of slate. It took some forty-five minutes to remove him from the mine and carry him, wrapped in a blanket and on a stretcher, down a mountain through a cold rain to a physician. He was perspiring freely. The physician found him in shock and suffering intense pain from a fracture of his pelvis on the left side. After first aid treatment, the workman was taken in a closed automobile some 52 miles to a hospital. Physicians there found a "fracture of the left ilium extending down to the acetabulum" and determined that it would be necessary to reduce the fracture under ether, which was done two days later. February 27 pneumonia developed and the workman died March 4. The industrial commission of Virginia, in proceedings that were instituted under the workmen's compensation act of that state, found that pneumonia, the immediate cause of death, had not resulted naturally and unavoidably from the industrial accident and denied the workman's widow and children compensation. The claimants then appealed to the Supreme Court of Appeals of Virginia.

At the hearing before the industrial commission it appeared that the direct and immediate cause of death was acute lobar pneumonia. The five physicians who testified at that hearing agreed that this type of pneumonia is contagious and in a majority of cases is spread by "pneumococcus carriers," persons who themselves may or may not have had pneumonia but whose nasal and oral secretions for weeks and months contain virulent pneumococci. The evidence indicated that a week or more after visiting the workman in the hospital several friends and kinsmen contracted pneumonia. None of the physicians expressed an opinion as to the time or source from which the decedent contracted pneumonia, but they all agreed that it had developed to such an extent that its symptoms were apparent on February 27, the third day after the operation, and that the incubation period of the disease is usually from one to two days, sometimes longer. Each physician stated that the shock of fracturing his pelvis and the operation for reduction of the fracture so weakened the workman's general resistance as to make him "very susceptible to the development of the germ." The physicians further agreed that following the administration of ether there is always danger of pneumonia developing in the patient. On the basis of this testimony, the industrial commission found that the administration of ether to the workman had had nothing whatever to do with the pneumonia that subsequently developed, that the germ had already been present in the workman and that the pneumonia had developed coincidentally during the period of hospitalization for the fracture. The commission concluded, therefore, that the industrial accident had not been a producing cause of death.

The Supreme Court of Appeals of Virginia, however, disagreed with the conclusions of the industrial commission. The medical testimony just adverted to, said the court, when considered alone is vague, but when weighed with the conceded facts it strengthens rather than weakens the claimants' contention that the accident was the starting link in the chain of causation ending in death. There was no proof but merely a suggestion of possibility that the workman was a carrier of pneumococci. But, even if that suggestion be accepted as proof, the claimants are entitled to compensation if the accidental injury so influenced the progress of an existing disease as to cause death. An accident to an employee which sets in motion his undeveloped and dangerous physical condition with mortal consequences is properly classable as the proximate cause of the fatality. Causal connection is established when it is shown that an employee has received a compensable injury which materially aggravates or accelerates a preexisting latent disease which

becomes the direct and immediate cause of death. The workman, continued the court, was hale and hearty for several years immediately preceding the accident. After the accident, exposure and operation he was confined to the hospital, where all proper precautions were taken to prevent the onslaught of pneumonia from any source. Notwithstanding these precautions, pneumonia developed in an otherwise apparently vigorous and healthy man within five days from the date of the accident and within three days from the date that ether was administered, resulting in death some five days later. In the absence of positive affirmative evidence, tending to establish a break in the chain of causation, the inevitable conclusion from the evidence is that the death of the workman resulted naturally and unavoidably from the accident.

Accordingly, the court reversed the order of the industrial commission and remanded the case to it with directions to allow the claimants the amount of compensation permitted by law.—*Justice v. Panther Coal Co., Inc. (Va.), 2 S. E. (2d) 333.*

Workmen's Compensation Acts: Liability of Employer for Noncompensable Occupational Disease.—Two suits, one a common law action for negligence and the other an action under a wrongful death statute, were brought against respective employers of two workmen who, in the course of their employment as sandblasters and operators of grinding machines, contracted silicosis or pneumoconiosis sometime prior to 1937. It was alleged that the employers had been negligent in that, contrary to the duties imposed on them by common law, by safety statutes and by rules of the industrial commission, they failed to furnish a safe place to work, failed to disclose to employees the dangerous conditions of their employment and failed to provide proper safety and protective devices. The workmen's compensation act of Ohio, in effect at the time the employees contracted their disabilities, provided compensation for only those occupational diseases enumerated in a schedule. As silicosis was not at that time included in that schedule, it was not compensable. This occupational disease, however, was later included in the schedule by an amendment to the compensation act in 1937. The defendant employers demurred to the complaints and in effect contended that no cause of action was maintainable at common law or under the wrongful death statute because such right, if any ever existed, had been taken away by the workmen's compensation act and by constitutional provisions relating to workmen's compensation. After judgments of two courts of appeals affirming judgments of the trial courts sustaining the demurrers, the two cases were consolidated and appealed to the Supreme Court of Ohio.

There was never a time, said the Supreme Court, when an action could not be maintained for an occupational disease provided all the elements were present which gave the employee a right of action for negligence according to the principles of the common law. For instance, if an employer is guilty of negligence in failing to maintain safe working conditions, and such negligence is the proximate cause of an occupational disease, the employee can bring an action for damages for the employer's negligence. In those states in which all or a part of the occupational diseases have not been made compensable under workmen's compensation acts, the overwhelming weight of authority is that the employee has a right of action at common law for negligence of the employer proximately causing a noncompensable occupational disease. Also, the safety statutes of Ohio which require the employer to furnish a safe place to work and to furnish and use proper safety devices and the rules of the industrial commission relative to the prevention of silicosis or pneumoconiosis impose duties on the employer which, on violation by the employer proximately resulting in the employee contracting an occupational disease, enable the employee to maintain an action for damages against the employer.

At the time workmen's compensation was first adopted in Ohio, said the court, an action for an occupational disease or for wrongful death therefrom could be maintained against an employer guilty of actionable negligence. From a study of the workmen's compensation act and the provisions of the Ohio constitution relating to workmen's compensation, the court could find no provision which abolished the right of an employee to

bring an action for damages for an occupational disease, not compensable under the workmen's compensation act, contracted as the result of the employer's negligence. Since the underlying purpose of compensation is to make industry bear the burden of human wreckage by paying stated awards for injury and loss of life in the course of employment, the court believed it should avoid any strained constitutional or statutory construction relative to workmen's compensation which would leave many employees, who were blameless victims of their employers' torts, without either damages or compensation and absolutely remediless. It would be an obvious injustice to allow compensation to some employees who contract occupational diseases and allow others nothing, not even damages, for occupational diseases tortiously inflicted.

Accordingly, the Supreme Court reversed the judgments in favor of the defendant employers and remanded the causes of action to the trial courts for further proceedings on the merits. —*Triff v. National Bronze & Aluminum Foundry Co.; Smith v. Lau (Ohio)*, 20 N. E. (2d) 232.

Workmen's Compensation Acts: Liability of Physician for Malpractice in Treatment of Industrial Injury.—In the course of her employment in a laundry the plaintiff sustained an injury to her spine, consisting of fractures of one or more vertebrae. By a settlement with her employer she obtained an award of compensation for \$1,500 under the workmen's compensation act of Illinois. Subsequently she brought suit for malpractice against the defendant physician whom she had engaged to treat her. She alleged that she had suffered injury because the physician had neglected to examine her and diagnose her condition, to perform an operation on her spine which she claimed was indicated and to reset the fractured vertebrae. Among other things, the defendant physician contended that the injury which the plaintiff alleged she received at his hands was but an aggravation of an injury which she had received in the course of her employment and so the settlement of compensation released him from liability for damages. From a judgment of the appellate court, second district, reversing a judgment of the trial court in her favor, the plaintiff appealed to the Supreme Court of Illinois.

The workmen's compensation act of Illinois provides that, where an employee's compensable injury or death was not proximately caused by the negligence of the employer or his employees but was caused under circumstances creating a legal liability on the part of some person other than the employer to pay damages, legal proceedings may be brought against such third person, if he has elected not to be bound by the act, to recover damages notwithstanding the employer's payment of or liability to pay compensation under the act. The act further provides that, if in the legal proceedings against such third person a judgment is obtained and paid or a settlement is made, from the amount received by the injured employee or his personal representative there shall be paid to the employer the amount of compensation paid or to be paid by the employer to such employee or personal representative. The defendant physician contended that he was not a third party within the meaning of these provisions of the act because he did not inflict the injury but only aggravated an injury which the employer had already caused. With this contention the court could not agree because to so construe these provisions would be to defeat their purpose, which is to require indemnification of the employer, where he is compelled to pay compensation as a direct result of the negligence of a third person, out of money recovered by the injured employee from such negligent third person. While an employer is liable for aggravation, due to malpractice, of an employee's injury, he is also liable for injury caused entirely by third persons through no fault of his own. In the instant case the employer had to pay an amount of money, in addition to compensation for the original injury, to cover the aggravation, caused by the defendant's malpractice, of the employee's injury. To adopt defendant's contention, said the court, would deprive the employer of his right of subrogation and confer on defendant a benefit to which he was in no way entitled.

Accordingly, the Supreme Court held that the appellate court correctly decided that the payment of compensation under the

workmen's compensation act was not a valid defense available to the defendant physician. However, because the appellate court had erred in holding that the suit had been barred by the statute of limitations, the judgment of the appellate court was reversed and that of the trial court in favor of the plaintiff affirmed.—*Huntton v. Pritchard (Ill.)*, 20 N. E. (2d) 53.

Society Proceedings

COMING MEETINGS

- American Medical Association, New York, June 10-14. Dr. Olin West, 535 N. Dearborn St., Chicago, Secretary.
- American Association for the Surgery of Trauma, Atlantic City, N. J., June 7-8. Dr. Ralph G. Carothers, 409 Broadway, Cincinnati, Secretary.
- American Association for Thoracic Surgery, Cleveland, June 6-8. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.
- American Association of Genito-Urinary Surgeons, Skytop, Pa., June 20-22. Dr. Charles C. Higgins, 2020 East 93d St., Cleveland, Secretary.
- American Association on Mental Deficiency, Atlantic City, N. J., May 22-26. Dr. E. Arthur Whitney, Washington Road, Elwyn, Pa., Secretary.
- American Broncho-Esophagological Association, New York, June 5. Dr. Paul Holinger, 1150 N. State St., Chicago, Secretary.
- American College of Chest Physicians, New York, June 8-10. Dr. Robert B. Homan Jr., P. O. Box 1069, El Paso, Texas, Secretary.
- American College of Radiology, New York, June 12. Mr. M. F. Cahal, 540 North Michigan Blvd., Chicago, Executive Secretary.
- American Gastro-Enterological Association, Atlantic City, N. J., June 10-11. Dr. Albert F. R. Andresen, 88 Sixth Ave., Brooklyn, N. Y., Secretary.
- American Gynecological Society, Quebec, Canada, June 17-19. Dr. Richard W. TeLinde, 11 East Chase St., Baltimore, Secretary.
- American Heart Association, New York, June 7-8. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.
- American Laryngological Association, Rye, N. Y., May 27-29. Dr. C. J. Imperatori, 108 East 38th St., New York, Secretary.
- American Laryngological, Rhinological and Otolological Society, New York, June 6-8. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.
- American Medical Women's Association, New York, June 9-10. Dr. Elizabeth Parker, 1835 Eye St., Washington, D. C., Secretary.
- American Neurological Association, Rye, N. Y., June 5-7. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.
- American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.
- American Otolological Society, Rye, N. Y., May 30-31. Dr. Isidor Friesner, 36 East 73d St., New York, Secretary Pro-Tem.
- American Physiotherapy Association, New York, June 23-28. Mrs. Elois T. Landis, 2065 Adelbert Rd., Cleveland, Secretary.
- American Proctologic Society, Richmond, Va., June 9-11. Dr. Curtie Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.
- American Psychiatric Association, Cincinnati, May 20-24. Dr. Arthur H. Ruggles, 305 Blackstone Blvd., Providence, R. I., Secretary.
- American Radium Society, New York, June 10-11. Dr. William E. Costelow, 1407 South Hope St., Los Angeles, Secretary.
- American Rheumatism Association, New York, June 10. Dr. Loring T. Swaim, 372 Marlborough St., Boston, Secretary.
- American Society of Clinical Pathologists, New York, June 6-10. Dr. Alfred S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.
- American Therapeutic Society, New York, June 7-8. Dr. Oscar B. Hunter, 1835 Eye St. N.W., Washington, D. C., Secretary.
- American Urological Association, Buffalo, N. Y., June 24-27. Dr. Clyde L. Denning, 789 Howard Ave., New Haven, Conn., Secretary.
- Association for the Study of Internal Secretions, New York, June 10-11. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.
- Connecticut State Medical Society, Hartford, May 22-23. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.
- Illinois State Medical Society, Peoria, May 21-23. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.
- Maine Medical Association, Rangeley Lakes, June 23-25. Dr. F. R. Carter, 22 Arsenal St., Portland, Secretary.
- Massachusetts Medical Society, Boston, May 21-22. Dr. Alexander S. Begg, 8 Fenway, Boston, Secretary.
- Medical Library Association, Portland, Ore., June 25-27. Miss Anna C. Holt, 25 Shattuck St., Boston, Secretary.
- Montana, Medical Association of, Bozeman, June 18-20. Dr. Thomas F. Walker, 206 Medical Arts Building, Great Falls, Secretary.
- National Gastroenterological Association, New York, June 4-6. Dr. G. Randolph Manning, Room 319, 1819 Broadway, New York, Secretary.
- National Tuberculosis Association, Cleveland, June 3-6. Dr. Charles J. Halford, 50 West 50th St., New York, Secretary.
- New Jersey, Medical Society of, Atlantic City, June 4-6. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.
- New Mexico Medical Society, Albuquerque, May 27-29. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.
- New York State Association of Public Health Laboratories, Rochester, May 20. Miss Mary B. Kirkbride, New Scotland Ave., Albany, Secretary.
- Pacific Northwest Medical Association, Spokane, Wash., June 26-29. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
- Rhode Island Medical Society, Providence, June 5-6. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.
- Society of Surgeons of New Jersey, Paterson, May 22. Dr. Walter B. Mount, 21 Plymouth St., Montclair, Secretary.
- South Dakota State Medical Association, Watertown, May 20-22. Dr. Clarence E. Sberwood, Madison, Secretary.
- Texas, State Medical Association of, Dallas, May 13-16. Dr. Holman Taylor, 1404 West El Paso St., Fort Worth, Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia
199:305-448 (March) 1940

- Renal Lesion in Obstructive Jaundice. L. L. Thompson Jr., W. D. Frazier and I. S. Ravdin, Philadelphia.—p. 305.
Tuberculosis of Nasopharynx: Positive Sputum with Roentgenographically Negative Chest. J. W. Trevis, Ann Arbor, Mich.—p. 312.
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Studies with Agar Cup-Plate Method: II. Effect of Blood on Mercury Antiseptics. S. B. Rose and Ruth E. Miller, Philadelphia.—p. 338.
*New Diagnostic Test (Galactose) for Thyroid Disease. T. L. Althausen, J. C. Lockhart and M. H. Soley, San Francisco.—p. 342.
Pharmacologic and Pathologic Effects of Repeated Convulsant Doses of Metrazol. R. W. Whitehead, K. T. Neubürger, Enid K. Rutledge and W. L. Silcott, Denver.—p. 352.
Pressor Action of Benzadrine and Paredrine. A. Iglaier and M. D. Altschule, Boston.—p. 359.
*Effect of Sulfapyridine Alone and with Serum on Pneumococcal Pneumonia and on Pneumococcus-Infected Marrow Cultures. J. G. M. Bullock, New York; E. E. Osgood, Portland, Ore.; S. C. Bukantz, New York, and Inez E. Brownlee, Portland, Ore.—p. 364.
Fatal Case of Hemolytic Anemia and Nephrotic Uremia Following Sulfapyridine Administration. J. M. Ravid and C. Chesner, Brooklyn.—p. 380.
Parenteral Administration of Sulfapyridine. J. W. Haviland, Baltimore, and F. G. Blake, New Haven, Conn.—p. 385.
*Observations on Pharmacology and Toxicology of Sulfathiazole in Man. J. G. Reinhold, H. F. Flippin and L. Schwartz, Philadelphia.—p. 393.

Galactose Test for Thyroid Disease.—Althausen and his associates report on the galactose tolerance test applied in 130 cases of hyperthyroidism, 121 in which hyperthyroidism was absent and seven cases of myxedema. The test consists of the oral administration of galactose followed by determinations of blood galactose thirty minutes and sixty minutes later. From the distribution of the peaks of the galactose curves in subjects with and without hyperthyroidism the normal range for maximal concentration of galactose in the blood under conditions of the test was between 10 and 30 mg. per hundred cubic centimeters. A peak between 30 and 40 mg. are abnormal. Values exceeding 40 mg. and below 10 mg. are abnormal. The test was positive in 124 cases, doubtful in five and negative in one of the 130 cases of hyperthyroidism. Of eighty-seven cases presenting conditions other than hyperthyroidism, seven cases presenting conditions other than hyperthyroidism, proved hepatic insufficiency or Paget's disease the test was abnormal in seven, doubtful in ten and negative in seventy. In four of the seven cases in which the test was positive, hepatic insufficiency was suspected. The galactose tolerance curve was abnormal in six of the seven cases of myxedema, and barely within the lower limit of normal in one. In the normal state, little if any galactose is found in five minute specimens but hyperthyroidism, increased intestinal absorption of sugars but expressed not only by a high peak of the galactose curve but also, in about one half of the cases, by a premature appearance in the blood of considerable amounts of galactose. Therefore the finding of 10 mg. per hundred cubic centimeters or more of galactose in five minute specimens is an additional criterion favor of the diagnosis of hyperthyroidism. This criterion is most useful in instances in which the peak of the galactose curve is in the doubtful zone. A comparison of the galactose test with the basal metabolic rates of the hyperthyroid patients showed no close quantitative correlation, although usually patients with extremely high basal metabolic rates also had equally high values for galactose. Probably the best explanation for lack of correlation is that elevation of the basal metabolic rate and stimulation of absorption are relatively independent effects of thyroxine which occur to varying degree in

different patients. In comparing the value of the galactose test with that of the basal metabolic rate, it appears that among patients with definite clinical hyperthyroidism doubtful results are encountered somewhat less frequently with the galactose test. This is probably due to the fact that the intestinal absorption of sugars is more sensitive to the influence of a small excess of circulating thyroxine than is the basal metabolism. When the basal metabolic rate is found to be elevated in patients with hyperthyroidism, that test seems to offer a more accurate index of the degree of hyperthyroidism than does the galactose tolerance test. In the differential diagnosis of hyperthyroidism, especially when the basal metabolic rate is less than plus 20, and in patients without hyperthyroidism who have an abnormally elevated basal metabolic rate. Fifteen of the 130 patients with hyperthyroidism belong in the first classification, and in all of these the galactose test was positive. In the second classification were eight patients suffering from anxiety states with hyperventilation and four patients with obscure cardiac dyspnea. The basal metabolic rate of these twelve patients ranged from plus 22 to 36, whereas the galactose test was negative in ten cases and doubtful in two. In five patients with nontoxic adenoma of the thyroid or with Hashimoto's struma, the results of the galactose tolerance test corresponded to estimations of the basal metabolic rate. Advanced hepatic insufficiency and Paget's disease interfere with the use of the test for the diagnosis of hyperthyroidism. Intravenous administration of galactose to patients with hyperthyroidism showed that, as a rule, utilization of galactose in this condition is normal. Usually subtotal thyroidectomy promptly restores the blood galactose curve to normal.

Effect of Sulfapyridine and Serum on Pneumococci.—The technic of vaccine vial culture of human marrow, permitting controlled quantitative studies of the interaction of living cells, bacteria and therapeutic agents, is extended by Bullock and his associates to include sulfapyridine in an attempt to evaluate the importance of adding specific serum in the treatment of pneumonia. Their observations indicate that serum plus sulfapyridine is a more effective therapeutic agent than either acting alone in the early cases when autogenous antibody cannot be expected to be present. It was suggested recently that serum plus sulfapyridine may be essential when capsular polysaccharide pneumococcal infection is so great that capsular polysaccharide is detected in the blood. The authors' studies indicated that pneumococci may remain viable for as long as fifty-four hours, despite the presence of sulfapyridine and serum, and that large inoculums may undergo temporary bacteriostasis with subsequent overgrowth. Summarizing their experimental studies the authors state that: 1. In marrow cultures the presence of sulfapyridine in concentrations of 5 mg. or more per hundred cubic centimeters may lead to ultimate sterility with inoculums of 500 or less cubic centimeters of types I, III or VII pneumococci, whereas controls uniformly grow out to more than 100 million colonies per hundred cubic centimeters. 2. The larger the initial inoculation, the less likely is sulfapyridine to lead to sterility. 3. Sulfapyridine alone is definitely more effective against pneumococci than equimolar concentrations of sulfanilamide. 4. The presence of type specific antiserum almost always increases the effectiveness of sulfapyridine. With the same concentrations of sulfapyridine, increasing quantities of antiserum interfere with the bactericidal action of sulfapyridine in vitro. 5. Within the range of concentrations employed, varying from 1 to 10,000, an increase in concentration of sulfapyridine results in an increase in effectiveness. 6. Different strains of pneumococci appear to vary in their susceptibility to sulfanilamide and sulfapyridine. Freshly isolated virulent strains appear to be less susceptible than strains that have been grown in ordinary mediums. 7. The presence of sulfapyridine does not result in rapid death of all organisms present. Small numbers of living organisms may be present for several days in cultures which appear microscopically sterile. 8. Sulfapyridine, in the concentrations employed, has not appeared to damage directly the marrow cells or to favor or inhibit phagocytosis. 9. Organisms exposed to the action of sulfapyridine undergo no loss of capsule or type specificity. They may, however, become dis-

torted, develop long chains and stain irregularly. 10. Acetyl-sulfapyridine is ineffective. 11. Serum from untreated pneumonia patients is not bactericidal. The serum from treated patients has bactericidal activity roughly proportional to its content of sulfapyridine and serum. 12. Sulfapyridine alone gave a lower death rate than either serum alone or serum plus sulfapyridine, in a series of 324 adult patients rotated for treatment. The lowest mortality rate was observed in cases treated early (from one to four days) with serum and sulfapyridine.

Pharmacology and Toxicology of Sulfathiazole.—Reinhold and his co-workers discuss the pharmacologic and toxic effects of sulfathiazole on human beings. They conducted two groups of experiments: those in which a single dose of the drug was administered orally, intravenously or rectally and those in which multiple doses were administered for several days. Its effects were observed in nine convalescent patients serving as controls and in eighty-three patients suffering from pneumonia. It was found that sulfathiazole is rapidly absorbed from the gastrointestinal tract and is rapidly excreted in the urine. Following intravenous administration of the sodium salt, recovery of sulfathiazole in the urine is practically quantitative. It is not readily absorbed from the rectum. The proportion of the drug conjugated is low in most individuals. Effects observed on renal function and the hemopoietic system were transitory and not pronounced. Vomiting occurred in about 10 per cent but was never severe enough to interfere with the use of the drug. The incidence of other toxic reactions was small. Because sulfathiazole is absorbed more readily from the gastrointestinal tract and is excreted more rapidly than sulfapyridine, its use therapeutically is more easily controlled, an advantage that at times may be of decided importance.

American Journal of Physiology, Baltimore

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Relative Roles of Extremities in Dissipation of Heat from Human Body Under Various Environmental Temperatures and Relative Humidities. Grace M. Roth, B. T. Horton and C. Sheard, Rochester, Minn.—p. 782.

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American Journal of Surgery, New York

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**Pathologic Factors Found in Surgical Investigation of Epilepsy.* K. W. Ney, New York.—p. 573.
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**Combined Intra-Uterine, Extra-Uterine Pregnancy: Review of 291 Cases in Literature and Report of Three New Cases.* A. Bernstein, San Francisco.—p. 597.
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Interposition of Vitallium Plates in Arthroplasties of Knee: Preliminary Report. W. C. Campbell, Memphis, Tenn.—p. 639.
Discogenetic Disease. A. Oppenheimer, Beirut, Lebanon, Syria.—p. 642.

Pathologic Changes in Epilepsy.—In a series of 272 patients with the "idiopathic" type of epilepsy Ney has found almost invariably definite lesions at operation. In 225, corticodural fixations at the cerebral vertex in or near the cortical motor areas were localized roentgenologically with the aid of subdural air insufflation. Arachnoidal defects or fistulas through which cerebrospinal fluid leaks into the subdural space have been found in practically every epileptic patient operated on. These fistulas are probably the result of tears in the arachnoid which have failed to heal. They are usually located at the extreme vertex of the brain, where the strain of gravity is greatest. During subdural air insufflation it is possible to demonstrate that cerebral postural stability is dependent on the maintenance of arachnoidodural approximation. This approximation is controlled by fluid film adhesion between the arachnoid and the dura, which maintains these structures in forceful apposition and a negative subdural pressure which develops when fluid film adhesion is lost through an excess of subdural fluid. This subdural negative pressure maintains the brain in a certain degree of postural stability but tends to siphon cerebrospinal fluid into the subdural space through arachnoidal fistulas when these are present. The traction on the cortex which occurs in expansive lesions and corticodural adhesions after craniocerebral trauma seems to be a factor responsible for the induction of convulsive phenomena in these two diverse pathologic conditions. During operation, traction serves to induce attacks. In the "idiopathic" type of epilepsy definite traction is exerted on corticodural attachments at the extreme vertex of the brain during postural displacement, which occurs when there is an excess of subdural fluid. Subdural air insufflation aids in the localization of corticodural attachments. It shows the cerebral postural displacement which takes place when air or excessive fluid enters the subdural space. The fluid level changes with the position of the head. The surgical correction of arachnoidal fistulas and the reduction of traction on corticodural attachments have so diminished convulsive attacks in his patients that the author feels justified in considering the lesions described as causative factors in chronic convulsive states.

Combined Intra-Uterine and Extra-Uterine Pregnancy.

—Bernstein considers only those cases in which extra-uterine and intra-uterine pregnancies were concurrent and simultaneous. An analysis of 276 cases collected by Novak in 1926, and of fifteen cases reported since and three of his own, reveals that the mortality in the entire series was 20.7 per cent, or 14.4 per cent if cases are excluded in which the condition was discovered only post mortem. These patients did not receive treatment. The maximal incidence of such pregnancies was in the active period of childbirth, from 26 to 35 years of age, with a tendency to fall in the latter half of the period. The previous parity suggests that previous labors predispose to the condition. The two pregnancies may occur at the same time or the uterine conception may antedate the extra-uterine, and vice versa. A normal pregnancy may occur while the dead products of an ectopic gestation are still present. The period of pregnancy varied from eleven weeks to term. The cause of nine deaths was internal hemorrhage. Symptoms were present from a few hours to the whole duration of pregnancy. Forty-one instances, with six deaths, were discovered after labor had started. Half

of these patients presented no symptoms except an unusual increase in the size of the abdomen. The intra-uterine pregnancy of six patients was terminated by abortion. In half of the patients after delivery a symptomless mass was observed in the abdomen. The other half had varying symptoms usually suggestive of infection or intestinal irritation. The symptoms of twelve patients were so insignificant that nothing was done for the palpable mass. Eight fetuses were passed piecemeal through fistulas, with death of one mother. A live child was removed from the abdomen on five occasions from one to twenty-three days after labor began. Sixteen patients had three other women was peritonitis and intraperitoneal hemorrhage of one. The condition of twenty patients was diagnosed on the second half of pregnancy or during labor. All were operated on and seven died from hemorrhage, septicemia, pulmonary embolism or pulmonary edema. Two deaths occurred in the sixth month, one in the seventh and four at term.

Archives of Ophthalmology, Chicago 23:477-688 (March) 1940

- Analysis of Operative Results in Concomitant Convergent Strabismus. G. G. Gibson, Philadelphia.—p. 477.
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Santa Lucia, Patroness of the Eyes. E. M. Blake, New Haven, Conn.—p. 526.
Bilateral Uveitis Associated with Detachment of Retina (Harada's Disease). A. Rados, Newark, N. J.—p. 534.
Relation of Dynamic to Static Refraction in Presbyopic Patients Through 50 Years of Age. H. F. Sudranski, Indianapolis.—p. 545.
New Corneoscleral Suture. J. M. McLean, Baltimore.—p. 554.
The Orthoptic Technician as an Aid to the Ophthalmologist. Julia E. Lancaster, San Francisco.—p. 560.
Lindau's Disease: Report of Six Cases, with Surgical Verification in Four Living Patients. A. E. MacDonald, Toronto.—p. 564.
Syndrome of Neurolytic Optica. J. L. Fetterman and W. P. Chamberlain Jr., Cleveland.—p. 577.
Vaccinia with Ocular Involvement. W. S. Atkinson and G. Scullard, Watertown, N. Y.—p. 584.
Experimental Retinoblastoma. A. Weil and L. L. Mayer, Chicago.—p. 591.
Glioma of Optic Nerve: Critical Review: Report of Two Cases, with Autopsy Observations in One. J. M. Wilson and W. D. Farmer, Durham, N. C.—p. 605.
Orthoptics at the Crossroads. E. Krinsky, Brooklyn.—p. 619.

Coats's Disease of the Retina.—Elwyn believes that the exudate and the connective tissue formation in the retina in Coats's disease are the consequences of local circulatory disturbances, beginning with transudations of plasma and of blood. The transudations and hemorrhages are the immediate results of peristasis and prestasis and of rupture of the central retinal and dilated vessels. The small abnormal vessels represent a congenital malformation involving branches of the central retinal vessels. These vascular malformations find their proper place in a classification of vascular malformations and tumors of the cerebral circulation. The disease occurs mostly in young persons and usually affects only one eye. It progresses slowly and is unnoticed until vision is greatly diminished or completely lost or a divergent strabismus occurs. The cornea, anterior chamber, iris and lens are normal in the early stages; the vitreous may show opacities. Characteristic of the disease is the occurrence of single or multiple white or yellowish white exudates in the fundus. The exudate at times is gray or greenish. It is situated mainly behind the retinal vessels. Hemorrhages in the retina occur in practically every case, near the veins, on the crest of the exudate or in its periphery. Deposits of pigment occasionally occur. The disk is usually normal and may be slightly hyperemic. Changes in the retinal vessels are mainly in the small vessels peripheral to the secondary and the tertiary branches, affect the veins more than the arteries and are limited to one retinal area. They consist of fusiform and spherical dilatations, loops, twists and tortuosities. The end result is partial or total blindness complicated by cataract formation, iritis, glaucoma or softening of the globe.

Lindau's Disease.—MacDonald encountered six cases of Lindau's disease among eleven members in two generations of two families. Of the remaining five only one was examined and his vision was found defective. The sight of the other four was said to be normal. In three cases the diagnosis of Lindau's disease has been verified by craniotomy, and in a fourth case, that of a blind sister of one of the three patients, a cerebellar hemangio-endothelioma was removed. All four patients have since returned to their work. The mother of two of the patients of the first family died after an operation for tumor of the brain. The father of two of the patients in the other family died of intracranial complications. Both of these parents had been blind in one eye for five years before death. The surgical diagnosis of two of the living patients has been confirmed by pathologic examination. Prior to 1928 fatal results were uniformly reported in the treatment of Lindau's disease into the second or the third decade of life. The year 1928 may mark the division of Lindau's disease into fatal and nonfatal, as the widespread complications reported by the early writers will no longer be seen. The cerebellar tumors of Lindau's disease are found in about one out of every five patients who suffer from retinal angiomatosis or Hippel's disease. The three cases in the author's second family may be considered as belonging to a group in which diagnosis is yet to be confirmed. There is no record in the fourth case of a retinal angioma, and the cerebellar angioma was lost at operation, when the small mural tumor disappeared in the sucker as the surrounding cyst was evacuated. The failure to diagnose the condition as Lindau's disease in one of these cases until after operation leads the author to believe that blindness without a history of trauma, when associated with the factor of heredity, should be considered as a possible equivalent of retinal angiomatosis. The essential cause of blindness in the first case of the first family was obscure until the operation on the second patient for hemangio-endothelioma, and even then confirmation was difficult by pathologic examination owing to the small size of the retinal tumor. The successful treatment of retinal angiomatosis by radon seeds has been recorded by Foster Moore. In treating the second patient four 0.7 millicurie radon seeds were used. They were attached to a silk suture at intervals of about 4 mm. for seven days on the sclera opposite the tumor. Removal of the seeds was facilitated by dipping them and the silk sutures in liquid pyroxylin before insertion. The terms Hippel's disease and Lindau's disease must be retained, for, while both conditions have a familial tendency, Hippel's disease may occur without complications. Multiple hemangio-endotheliomas must be demonstrated to justify diagnosis of Lindau's disease and, if only one tumor is found, familial incidence must be shown.

Arkansas Medical Society Journal, Fort Smith 36:221-240 (March) 1940

- Treatment of Antepartum Hemorrhage. B. J. Reaves, Little Rock.—p. 221.
Acidiform Treatment of Rheumatic Disorders. F. J. Scully, Hot Springs National Park.—p. 225.

Florida Medical Association Journal, Jacksonville 26:373-424 (Feb.) 1940

- Acute Appendicitis. L. J. Netto, West Palm Beach.—p. 383.
Acute Intestinal Obstruction: Diagnosis and Physiologic Treatment. H. West, DeLand.—p. 387.
Yellow Jack. G. N. MacDonell, Miami.—p. 391.
Coronary Occlusion in General Practice. T. C. Kenaston, Cocoa.—p. 394.
Clinical Endocrinology of the Male, with Especial Reference to Male Climacteric. C. P. Lamar, Miami.—p. 398.

Journal of Aviation Medicine, St. Paul 11:1-56 (March) 1940

- Forum on Air Line Medical Problems. H. B. Wright, Cleveland.—p. 2.
*Syndrome of Vasomotor Instability as Seen in Examinations of Cadet Applicants for Flying. C. L. Leedham, Randolph Field, Texas.—p. 20.
Some Observations on Aviation Cadet Selection. W. W. Davies.—p. 37.
Vasomotor Instability in Applicants for Flying.—Leedham determined the incidence of vasomotor instability in 679 applicants for appointment as flying cadets in the United States Army. Of these, 202 were accepted unqualifiedly as physically fit, twenty-three were disqualified on remediable defects and 454 were rejected. The cardiovascular system contributed either

wholly or in part to 178 rejections. In thirty-five the cardiovascular system was the only disqualifying factor, while vasomotor instability played a part in 138 rejections. The author considers vasomotor instability to be a minor degree of neurocirculatory asthenia. The diagnostic points of vasomotor instability as interpreted at the School of Aviation Medicine are a low Schneider index, unstable blood pressure, unstable pulse rate and a coarse tremor. To these may be added symptoms and signs of neurocirculatory asthenia. The cause of vasomotor instability in the applicants has not been elucidated. The group studied consisted of healthy men between 20 and 27, preselected by the educational requirement of two years of college work. Hence the author believes that they should have been the cream of the population. It is possible that the condition is an incident to better breeding, the mental capacity and stress required for the successful completion of two years of college work. There has been no work of a control nature to prove or disprove this hypothesis. The author's study indicates that this syndrome is not a physical condition. There is no significant trend except possibly in the weight, especially the underweight, which suggests that individuals chronically underweight, whether from asthenic build or from some other undiscovered constitutional factor, have a greater incidence of *vasomotor instability*. He believes that vasomotor instability is a neurogenic entity, probably a part of a generalized emotional instability. The condition does not depend on a disease of the vasomotor apparatus but is an expression of instability or lack of normal control, apparently by the vasomotor centers. The condition is present in adults who are apparently in good physical condition. Many of these individuals passed every other portion of the examination for flying but were found to be unstable and easily excited.

Kansas Medical Society Journal, Topeka

41:89-132 (March) 1940

- Coronary Sclerosis. C. A. Hellwig, Wichita.—p. 89.
Xanthoma Tuberosum: Report of Case. M. Delp, Kansas City.—p. 95.
Observations on Eyes During Metrazol Treatment. L. S. Powell, Lawrence; M. E. Hyde and J. Russell, Osawatomie.—p. 97.

Medical Annals of District of Columbia, Washington

9:71-108 (March) 1940

- Methods for Measurement of Pressures in Antecubital and Popliteal Veins During Exercise. J. R. Veal and H. H. Hussey, Washington.—p. 71.
Traction Manipulation Treatment of "Stiff Neck." J. S. Neviasser, Washington.—p. 75.
Treatment of Staphylococcal Septicemia with Sulfamethylthiazole: Report of Case with Recovery. T. F. Kehler and S. A. Carlen, Washington.—p. 78.
Treatment of Pneumococcal Peritonitis with Sulfamido Drugs and Serum: Report of Two Cases. W. W. Sager, Washington.—p. 81.
Sulfapyridine: Is It a Safe Drug? T. G. Klumpp and R. W. Weilerstein, Washington.—p. 83.

Michigan State Medical Society Journal, Lansing

39:157-228 (March) 1940

- *Chronic Cholecystitis: Present Medical and Surgical Status. W. H. Cole, Chicago.—p. 173.
Occupational Dermatoses: Treatment and Prevention. L. Schwartz, Washington, D. C.—p. 179.
*Control of Pneumonia. L. D. Felton, Washington, D. C.—p. 181.
Posterolateral Dislocation of Elbow: Associated with Displacement of Internal Epicondyle into Joint. D. Somers and A. Goetz, Detroit.—p. 188.
Bacillary Dysentery. V. L. Barker, Monroe.—p. 190.
Headache and Head Pain of Ocular Origin. A. D. Ruedemann, Cleveland.—p. 191.
Sterility: Recent Trends in Its Investigation and Treatment. C. P. Huber, Indianapolis.—p. 193.

Chronic Cholecystitis.—Cole asserts that relief of gallstone obstruction of the common duct accompanying chronic cholecystitis represents the one condition in which an urgent operation is indicated. Other indications are dependent on the amount of pain and the prevention of complications. The latter consideration is of importance, as death from gallbladder disease results from complications of the disease and not from the lesion itself. At least half of the patients with disease of the gallbladder are without symptoms. At present there is a tendency to ignore these instances of "silent gallbladder," except that the presence of stones in a young person may be sufficient cause for cholecystectomy. The author believes that in general there is far too much conservatism displayed in the operative treatment of aged people with disease of the gallbladder, particularly since

the aged succumb readily to the complications of cholecystitis. It is not fully appreciated that aged people tolerate abdominal operations including cholecystectomy quite well provided they have no serious complicating disease, but they do not tolerate the complications of cholecystitis. New developments in anesthesia eliminate to a great extent the previous serious danger of postoperative pneumonia in the aged. The diagnosis of disease of the gallbladder should be definite before operation is advised. Failure to obtain relief is often due to the performance of operation with the wrong diagnosis. Cholecystitis is so common that in many instances a second disease will be present and it will be causing the symptoms. If acute pancreatitis is present, operation is strongly indicated even though the symptoms of cholecystitis may be mild. Operation for attacks of cholecystitis during pregnancy is rarely indicated because symptoms frequently disappear after parturition. Results following cholecystectomy are generally much better in the group of patients complaining of severe pain in the right upper quadrant which radiates posteriorly, while results will be poor in the group complaining of dyspepsia with only mild pain. Biliary dyskinesia accounts for a portion of the failures following cholecystectomy. The type and thoroughness of the operation often determine the result; an ill advised cholecystostomy may be followed by recurrence of symptoms which would have been relieved completely by cholecystectomy. Cholecystectomy itself does not shorten life. In general, complicating diseases not secondary to the cholecystitis are contraindications to operation, whereas diseases secondary to gallbladder disease increase the indication for operation unless they have progressed to the point at which operability is seriously jeopardized.

Control of Pneumonia.—Felton cites Gundel to the effect that pneumococci were not found in the respiratory passages of newborn infants but might occur on the second or third day. He found pneumococci in 60 per cent of 100 infants. He concluded that vegetative forms of pneumococci were not instrumental in causing pneumonia but believed that the causative organism came from without. A higher percentage of pneumonia results from contact with an actual case; but if this were the sole source it would be difficult to explain many isolated cases of pneumonia and the origin of the pneumococci capable of producing disease. Man harbors pneumococci with greater frequency than any other animal and with a greater diversity of pneumococcus types. He either furnishes the soil for the different varieties of this bacteriologic seed or produces variants of a common variety depending on biochemical differences in individual animals. The pneumococcus varies in invasive power or virulence with the different seasons of the year. The observation that incidence of pneumonia is higher in contacts than in carriers indicates an acquired virulence by passage through man. The commensal relationship of the pneumococcus and man cannot be overlooked. Evidently the organism maintains sufficient disease-producing characteristics to allow invasion when conditions of the host will permit. The greater the virulence of the organism, the greater is its invasiveness; but the greater the virulence, the greater is its antigenicity. If the host is capable of responding to the antigen supplied by the pneumococcus with the formation of antibodies, the barrier against invasion is increased and the organism becomes avirulent. The virulent organism carries with it the ability to produce disease or to produce immunity of the host. The specific antibody is probably not the only defense of the host. The natural resistance may be the most important method in the control of infectious disease. More than 25 per cent of the general population harbor the pneumococcus. This percentage probably represents those persons who respond well to pneumococcus antigen and are highly resistant to infection. The explanation as to why one individual out of 500 contracts lobar pneumonia annually might well be related to the ability of the host to respond to the antigen present in the commensal parasite. Serum titrations, both before and after immunization with type I pneumococcus, of 641 individuals from 2 to 79 years of age show, contrary to expectations, that there apparently is no difference in antibody response in the various decades. The serums from 70.6 per cent of the individuals before immunization failed to show demonstrable protective antibodies. After immunization only 5.9 per cent were negative. The same

general result was found in the case of the type II pneumococcus. The problem is to determine whether or not persons who fail to respond and those who respond poorly are highly susceptible to pneumococcal infection or lobar pneumonia, and those who respond well are resistant. Preliminary study of the antibody titer and intensity of reaction. Efforts must be made toward analysis of the conditions which change the normal commensal to a virulent parasite. The methods of controlling pneumonia are the cure of the host nonspecifically or specifically. Definite advances in its cure have been made during the last fifteen years. Serum therapy decreased the mortality of lobar pneumonia for the first time in the history of medicine.

Military Surgeon, Washington, D. C.
86:225-340 (March) 1940

- Effect of Cold on Oxygen Content of Blood: Preliminary Report. M. C. Grow.—p. 225.
*Prophylactic Treatment of Wounds in War. P. M. Keating and F. M. Davis.—p. 235.
Eighteen Years of Pneumonia at William Beaumont General Hospital El Paso, Texas. T. E. Scott and E. M. Nielsen.—p. 241.
Calcium Metabolism and Teeth: Summary of Present Day Knowledge. R. Kronfeld.—p. 250.
Marching Efficiency. A. Steindler.—p. 256.
Horace Wells, The Man—The Benefactor. P. W. Brown, F. R. Krug and R. D. Darby.—p. 263.
Aneurysms of Aorta. D. C. Collins.—p. 270.
Practical Method of Localizing a Foreign Body in the Eye, When a Sweet's Localizer Is Not Available. J. M. Love.—p. 281.
Contusion of Kidney. D. B. Stearns.—p. 284.
Foot Strain, Simple Method of Treatment. L. Cozen.—p. 290.
Insulin and Metrazol Treatment of Psychoses. J. M. Nielson.—p. 298.

Prophylactic Treatment of War Wounds.—The primary requisite of military surgery, according to Keating and Davis, is to send the wounded back to duty as quickly as possible and with the least possible mutilation. Treatment differs from civilian prototype mostly in that it usually cannot be instituted quickly because of evacuating difficulties. Experience during the last two years has shown that prophylactic roentgen treatment in industrial cases of penetrating, perforating and crushing wounds, given a few hours after their reception, perceptibly decreases the percentage of infections by gas forming organisms, as well as by streptococci and staphylococci. These industrial wounds are closely comparable to those received in combat. This prophylactic treatment of dirty wounds, in addition to the accepted cleansing and débridement, makes primary closure a frequent success and is frequently successful even if fractures are plated immediately. To make this type of treatment available to soldiers it will be necessary to install adequate x-ray apparatus at the first well equipped surgical establishment through which the wounded are passed and operated on during their evacuation to the rear. It is suggested that these prophylactic x-ray units be placed in the mobile surgical hospitals.

New England Journal of Medicine, Boston
222:373-424 (March 7) 1940

- *Combined Degeneration of Spinal Cord in Pernicious Anemia: Results of Seven Years' Experience with Parenteral Liver Therapy. M. B. Strauss, P. Solomon and H. J. Fox, Boston.—p. 373.
*Regional Ileitis. S. F. Marshall, Boston.—p. 375.
Neurosurgery. D. Munro, Boston.—p. 308.

Degeneration of Spinal Cord in Pernicious Anemia.—Strauss and his associates reported in THE JOURNAL, May 4, 1935, on the efficacy of parenteral liver therapy for the neural manifestations of pernicious anemia. Spinal cord lesions of uncomplicated pernicious anemia could be completely arrested by adequate parenterally administered liver extract. Patients without neural lesions did not develop spinal cord degeneration when adequately treated. These conclusions were based on a study of twenty-six patients with marked spinal cord lesions and eighty patients with minimal or no neural lesions, treated for an average period of three years. Twenty-one of the first group and sixty-four of the second were observed for an additional four years, making a total of eighty-five patients observed for an average period of seven years. In none of the twenty-one cases of marked involvement of the spinal cord did any objective neurologic sign become more marked during the seven year period of treatment nor did an abnormal sign, not previously present, appear.

This indicates a complete arrest of the degenerative process. The sixty-four patients had either mild lesions not interfering with their ability to walk. In none of these has any further evidence of neural damage appeared. This indicates that adequate therapy prevents the development of degeneration of the spinal cord in pernicious anemia. Adequate treatment demands that enough extract must be given to maintain the blood values at normal. Not only should the red cells number 4,500,000 or higher, but the mean corpuscular volume should be below 100 cubic microns, and the color index 1 or below. There must be no glossitis or indigestion. Recurrences of numbness, tingling or other paresthesia of the extremities calls for increase in the dose of liver extract. If the patient presents other subjective manifestations that might be attributed to progression of the spinal cord lesions, the dose should be doubled.

Regional Ileitis.—Marshall reports forty-eight cases of regional ileitis observed at the Lahey Clinic during the last six years. Operations were performed in twenty-nine of these. Involvement of the ileocecal junction was noted in sixteen. The cause of the disease has not been established. The work by Felsen suggests a dysentery bacillus as the causative agent, but such bacilli have not been isolated from the resected specimens. The condition was also believed to be due to lymphatic disease of the mesentery, with the production of marked lymphedema of the bowel wall. Association between regional ileitis and lymphadenitis of early childhood caused by small unrecognized lesions of the mucosa is a possibility. It is a disease of young adults, occurring most commonly in the third and fourth decades. The symptoms are pain in the right lower quadrant, nausea, diarrhea, loss of weight and anemia. The course of the disease is that of a chronic, progressive inflammatory process, which may persist for months or years. The onset may be acute with symptoms resembling those of acute appendicitis. Of the twenty-nine patients operated on, fifteen had had a previous appendectomy, the true nature of the disease apparently being recognized only twice. Symptoms of intestinal obstruction are not uncommon, though a complete obstruction rarely occurs. One of the commonest complications is the occurrence of fistulas, which may be either internal or external. The diagnosis is established by x-ray examination. Characteristic filling defects are noted in the terminal ileum. In the advanced cases marked stenosis of the bowel reduces the lumen so that only a thin, irregular linear shadow is seen, presenting the "string sign" of Kantor. The filling defects of the terminal ileum just proximal to the cecum are characteristic. The x-ray observations in conjunction with the history establish the diagnosis in the majority of cases. At the Lahey Clinic resection of the terminal ileum, cecum and ascending colon by the Mikulicz technic was practiced. To attempt such an extensive resection with immediate primary anastomosis greatly increases the operative hazard and is unjustifiable in view of the excellent results and comparative safety with which a two stage Mikulicz type of resection can be carried out in a large majority of cases. Recurrences are probably associated with incomplete removal of the affected bowel, and for this reason the author advocates wide excision of the affected loop. He believes that the cecum should be removed in all cases in which the terminal ileum is involved.

New Orleans Medical and Surgical Journal
92:489-544 (March) 1940

- Aims of Appendicitis Committee of Surgical Section of Southern Medical Association. I. Cohn, New Orleans.—p. 490.
Diagnosis of Acute Appendicitis. H. R. Kahle, New Orleans.—p. 490.
Management of the Patient with Possible Appendicitis. S. Karlin, New Orleans.—p. 494.
Age Factors in Acute Appendicitis. C. J. Miangolarra, New Orleans.—p. 496.
Mistakes Commonly Made in Treatment of Syphilis of Nervous System. C. S. Holbrook, New Orleans.—p. 498.
Cor Pulmonale. B. R. Heninger, New Orleans.—p. 489.
Treatment of Trichomonas Vaginalis Vaginitis with Sodium Perborate: Preliminary Report of Fourteen Cases. E. C. Smith, New Orleans.—p. 510.
Endometrial Changes and Their Relation to Ovarian Dysfunction. J. R. Kriz and H. J. Schattenberg, New Orleans.—p. 514.
Fractures of Upper End of Humerus Treated by Early Relaxed Motion and Massage. R. H. Alldredge and M. P. Knight, New Orleans.—p. 519.

North Carolina Medical Journal, Winston-Salem

1:125-176 (March) 1940

- Medical Research: The Story of Sulfanilamide. E. K. Marshall Jr., Baltimore.—p. 125.
- Urgent Surgery on Infants Under One Year of Age. F. W. Griffith, Asheville.—p. 129.
- Prevention and Treatment of Pelvic Floor Injuries. B. P. Watson, New York.—p. 134.
- Tuberculosis Case Finding Program in a Woman's College. Ruth M. Collings, Greensboro.—p. 138.
- Chronic Acetanilid Poisoning with Addiction. D. McIntosh Jr., Marion.—p. 143.
- Management of Old Contractures of Hand Resulting from Third Degree Burns. R. Jones Jr., Durham.—p. 148.
- Diagnosis and Treatment of Neurosyphilis. J. P. Davis, Winston-Salem.—p. 152.
- Analysis of Deaths Among Individuals with Syphilis in North Carolina During 1938: Preliminary Report. G. M. Leiby, Washington, D. C.—p. 156.
- Artificial Rupturing of Membranes as Method of Induction of Labor. J. C. Tayloe, Washington, N. C.—p. 159.

Public Health Reports, Washington, D. C.

55:303-346 (Feb. 23) 1940

- Further Study of Mode of Action of Methylcholanthrene on Normal Tissue Cultures. W. R. Earle and C. Voegtlin.—p. 303.
- Our Verbal Public Health Activities. J. W. Mountin.—p. 323.

55:347-386 (March 1) 1940

- Study of Pneumococcus Typing Serums for Purpose of Standardizing a Test for Potency. Bernice E. Eddy.—p. 347.
- Yellow Fever. J. H. Bauer.—p. 362.
- Notes on Variation in Eggs of *Anopheles punctipennis* Say. W. K. Lawlor.—p. 371.

55:387-440 (March 8) 1940

- Place of an Index in Health Department Record Keeping. J. W. Mountin and Evelyn Flook.—p. 387.
- Studies of Sewage Purification: XI. Removal of Glucose from Substrates by Activated Sludge. C. C. Ruehlhoff, J. F. Kachmar and W. A. Moore.—p. 393.

Rhode Island Medical Journal, Providence

23:31-46 (March) 1940

- Providence Medical Association. H. C. Messinger, Providence.—p. 31.
- Sulfanilamide Therapy at Rhode Island Hospital. R. O. Downman, Providence.—p. 33.

Surgery, Gynecology and Obstetrics, Chicago

70:603-730 (March) 1940. Partial Index

- Feeding and Gastrointestinal Activity and Defecation in Amnio: Study in Guinea Pig. R. F. Becker, and M. D. Schulz, Chicago.—p. 603.
- Malignant Changes in Fibro-Adenoma of Mammary Gland. S. W. Harrington and J. M. Miller, Rochester, Minn.—p. 615.
- Management of Breech Delivery. T. R. Goethals, Boston.—p. 620.
- Anoxia and Oxygen Therapy in Head Injury. J. G. Schneider, R. A. Munslow, A. S. Crawford and R. D. McClure, Detroit.—p. 628.
- *Consideration of So-Called "Granulosa" and "Theca" Cell Tumors of Ovary. H. P. Traut and A. A. Marchetti, New York.—p. 632.
- Anatomy of the Peritoneal Cavity and Ligamentous Structures in Relation to the Abdominal Cavity. A. H. Curtis, B. J. Anson and L. A. Smith.—p. 643.
- Anesthesia in General. K. M. Heard, Toronto.—p. 657.
- The Problem for Surgery in Treatment of Massive Hemorrhage of Uterine Origin. C. S. Welch and A. M. Yonick, Albany, N. Y.—p. 662.
- Significance of Nutrition and Gastric Acidity in Etiology of Experimental Peptic Ulcer. A. Slive, W. H. Bachrach and S. J. Fogelson, Chicago.—p. 666.
- *Relation of Chronic Cystic Mastitis to Malignancy. I. M. Procter, Raleigh, N. C.; C. C. Carpenter and R. P. Morehead, Wake Forest, N. C.—p. 671.
- Operations for Gallstones. V. M. Compleson, Sydney, Australia.—p. 679.
- New Plan of Antecolic Duodenojejunal Anastomosis. F. H. Lahey, Boston.—p. 689.
- Repair of Defects of Frontal Bone. G. B. New and C. R. Dix, Rochester, Minn.—p. 698.

"Granulosa" and "Theca" Cell Tumors of Ovary.—

Traut and Marchetti present the criteria and the differentiation of the two main types of cells of theca and granulosa cell tumors. They arrive at differentiation of the theca and granulosa cells on the basis of their studies with the Foot silver stain. Neoplastic granulosa cells occur in islands consisting of from a few to several hundred cells. They seldom exist singly. The islands are surrounded by strands or networks of reticulum containing numerous theca cells and the works of reticulum containing numerous theca cells and the vascular supply. The nuclei of theca and granulosa cells are impossible to distinguish from one another, as they contain similar nucleolar and chromatin bodies. However, the cytoplasm of the granulosa cell contains many argentophil granules,

whereas the cytoplasm of the theca cell is almost devoid of these bodies. The theca cell is always in intimate relationship with the reticular framework to such a degree that each cell is surrounded by a capsule of this material which isolates it from the neighboring theca cells. The granulosa cells are seen in groups, usually of large numbers, each cell being in immediate contact with its neighboring granulosa cells. The island of granulosa cells is surrounded but not penetrated by the reticulum. The application of these differential points affords a new approach to the study of this group of tumors, which will yield data not formerly obtainable. In attempting to outline the life cycle of these tumors and its relationship to the clinical syndrome, the authors point out that most graafian follicle tumors produce symptoms which bring the patient to the physician, with the result that the great majority of them are removed before they have reached the end of their life cycle. It is therefore necessary to postulate some of the terminal aspects of the neoplasms. If the tumor is not adversely affected by such accidents as ischemia or hematoma formation, the cells tend to mature and to undergo quite typical degenerative changes. The theca cells reach the end of their life cycle sooner than do the granulosa cells. Luteinization occurs in both types and this is followed by collagenous degeneration, which is replaced by fibrosis. The greater the content of theca cells, the more likely is the tumor to produce fibrous connective tissue. The granulosa elements, however, being poorly supplied with supporting framework on which to dispose themselves and being less intimately supplied with blood vessels, are more prone to premature accidents which interrupt the other forms of degeneration that might otherwise ensue.

Chronic Cystic Mastitis and Malignancy.—Procter and his co-workers point out that the breast is constantly undergoing periodic changes of progression and regression (hyperplasia and involution) from birth to senility. The histologic picture is changed weekly if not daily. The breast is under the direct control of the ovary, and the ovary is under the control of the anterior pituitary. The ovary exerts a dual hormonal influence on the breast, the periacinous and periductal connective tissue being governed by the follicular and interstitial elements of the ovary, while the duct and acinous epithelium is under the control of the corpus luteum. If this control becomes abnormal by a disturbance in the time or volume of hormone liberation, the periodic mammary changes may cross the borderline from the physiologic into a pathologic state. The breast is continuously undergoing changes of progression and regression as a result of hormone stimulation. As the endocrine life of the individual is different during the various decades, pathologic change will bear a close relationship to these decades. During the first decade of menstrual life two common pathologic changes occur: periductal and intracanalicular fibro-adenomas. These are probably the result of excessive hormone stimulation or endocrine hypersensitivity on the part of certain tissues. During the second decade the borderline between the physiologic and pathologic is frequently crossed and "chronic cystic mastitis" develops. The various changes that take place are probably the result of ovarian stimulation. In contrast to the first decade, the epithelium is involved instead of the connective tissue. This altered physiology results in the production of chronic cystic mastitis and the blue dome cyst of Bloodgood. If adenosis (Chaotic and Cutler) is the predominating feature, microscopic examination of the area reveals epithelial proliferation with the formation of small intracystic papillomas or nonencapsulated adenomatous areas. The cystic disease may be characterized by the formation of one or several well developed cysts. Bloodgood contended that these lesions had no relationship to malignant growth. However, if the entire gland is sectioned dilated ducts containing intraductal papillomas are frequently observed and these not infrequently show the presence of malignant alteration. In the third decade of menstrual life certain breasts fail to cease activity with cystic hyperplasia and go on to benign neoplasia and possibly to carcinoma. The active epithelium is laid down layer by layer to form sessile papillomas. In other instances connective tissue stalks invade the epithelial growths and true papillomas are formed. At times the multiple papillomas attach themselves one to the other to form new gland surfaces and

adenomatous masses, so-called comedo adenomas of Bloodgood. The authors' series of cases have proved to their satisfaction the existence of both benign intraductal adenomas and various degrees of malignant change in duct carcinoma. In cases microscopically malignant, they obtained both success and failure following complete operation and high voltage roentgen therapy. Cutler has shown cyst papilloma and carcinoma in the same duct and has set forth evidence that 20 per cent of all carcinomas of the breast originate in eystigerous desquamative epithelial hyperplasia. The evidence at hand seems to favor the idea that the greater number of pathologic changes in the breast are of hormone origin. Experimental investigation has established the dependence of mammary connective tissue activity on the follicular hormone and of epithelial tissue development on the corpus luteum. If the relationship between ovarian secretion and mammary activity is accepted it is easy to visualize a disturbance in this delicate balance with resulting disturbances in hyperplasia and involution. In many cases the fault may lie with the anterior pituitary, as this gland is the dynamic motor activator of the breast but is greatly concerned, and properly so, when a solitary mass appears. When the latter occurs, hormone treatment should never be instituted. The authors prepare such patients for radical operation and remove the tumor, excising a wide margin of normal breast tissue. Immediate frozen sections are made and if the lesion is benign the wound is closed; if malignant, the radical operation is performed at once and is followed by adequate high voltage roentgen therapy. The authors feel that the obstetrician should instruct patients about the care of the breast as well as of the uterus and that the gynecologist and surgeon should work together with the pathologist in the operating room and laboratory in order to reach a more accurate diagnosis and most efficient treatment.

Texas State Journal of Medicine, Fort Worth 35:745-816 (March) 1940

- The Prostate: Medical and Surgical Aspects. H. H. Young, Baltimore.—p. 751.
Diagnosis of Intestinal Obstruction. S. E. Russ, San Antonio.—p. 754.
Acute Intestinal Obstruction. J. V. Goode, Dallas.—p. 756.
Regional Enteritis. L. W. Baird, Temple.—p. 760.
Colitis. T. Miller, Dallas.—p. 764.
Generalized Cryptococcosis Simulating Hodgkin's Disease. May Owen, Fort Worth.—p. 767.
Urinary Complications of Carcinoma of Cervix. J. O. Chambers, Galveston.—p. 771.
Treatment of Cancer of Skin by X-Rays. H. Klapproth, Sherman.—p. 776.
Sulfanilamide in Ophthalmology. C. S. Sykes, Galveston.—p. 780.
Vascularization of Cornea. W. E. Muldoon, San Antonio.—p. 783.
Infectious Diseases of Animals Transmissible to Man That Are Prevalent in Texas. T. O. Booth, Fort Worth.—p. 787.
The Health Officer's Responsibility in the Dental Health Program. E. Taylor, Austin.—p. 793.

Western J. Surg., Obst. & Gynecology, Portland, Ore. 48:129-204 (March) 1940

- Rupture of Kidney. A. H. Peacock, Seattle.—p. 129.
Clinical Significance of Neurofibromatosis (von Recklinghausen's Disease). D. Trueblood, Seattle.—p. 134.
Essential Principles in Treatment of Tetanus. D. R. Jensen, New York.—p. 146.
Rhabdomyosarcoma and Other Myocardial Tumors: Report of Three Cases. C. P. Larson, Tacoma, Wash., and W. L. Lidbeck, Salem, Ore.—p. 151.
Endometriosis: Clinical Review. H. von Geldern, San Francisco.—p. 154.
Formation of Artificial Vagina. E. P. Steinmetz, Portland, Ore.—p. 169.
Ectopic Pregnancy. H. N. Shaw, Los Angeles.—p. 181.

Wisconsin Medical Journal, Madison 39:153-252 (March) 1940

- Early Diagnosis of Cancer in General Practice. M. Fernan-Nunez, Milwaukee.—p. 169.
Comments on Pollen Therapy, with Special Reference to Its Application in Wisconsin. H. J. Lee, Oshkosh.—p. 175.
Significant Details in Routine Health Examination of Children: Examination of the Eye, Ear, Nose, Throat and Orthopedic and General Considerations. E. H. Haessler, Milwaukee; J. E. Mulsow, Milwaukee; L. A. Copps, Marshfield; W. P. Blount and R. M. Greenthal, Milwaukee.—p. 179.
Transvaginal X-Ray Treatment of Cervical Cancer. A. W. Erskine, Cedar Rapids, Iowa.—p. 184.
Otolaryngologic Aspects of Blood Dyscrasias. W. E. Grove, Milwaukee.—p. 188.
Surgical Treatment of Prostatic Obstruction. J. B. Wear, Madison.—p. 192.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London 1:377-424 (March 9) 1940

- *Preparation and Use of Dried Plasma for Transfusion. F. R. Edwards, J. Kay and T. B. Davie.—p. 377.
Treatment and Primary Suture of Face Wounds. E. D. D. Davis.—p. 381.
Two Commonly Misunderstood Skin Conditions in Infancy. I. Gordon.—p. 383.
Stitch for Use in the Harris Prostatectomy. O. S. Hillman.—p. 385.
Postpartum Retinal Arterial Obstruction Associated with Hemiplegia. A. M. W. Thomson.—p. 387.

Dried Plasma for Transfusion.—Edwards and his co-workers point out that the formation of blood banks has made available a considerable supply of plasma. It is the plasma protein element of a blood transfusion that produces the desired effect; the erythrocytes play a secondary part. Plasma will keep indefinitely as compared with stored blood and no group-ing of the recipient is necessary. Blood may be taken from donors for the purpose of obtaining plasma, in which case the stored blood should be kept undisturbed for a period of from three to four days to allow the maximal separation of plasma from the erythrocytes. Most of the plasma the authors used has been obtained from bottles of citrated stored blood about fourteen days old. If these bottles have not been disturbed since the erythrocytes have settled, practically clear plasma can be withdrawn without any disturbance of the layers in contact with the erythrocytes. A slight discoloration by hemoglobin is of no disadvantage and its administration seems to be innocuous. Although administration of pure plasma has been satisfactory, if the plasma could be dried, storage and transportability would be greatly simplified and the possibility of bacterial growth greatly reduced. The authors devised a continuous-feed plasma drier. The plasma is suctioned over in a thin stream into a special container and there dried. It is removed later under aseptic conditions and stored in ampules. About 8 Gm. of the dried product is obtained from 100 cc. of citrated plasma. The dried plasma is dissolved in the ratio of 8 Gm. to 100 cc. of warm distilled water; dissolving 20 Gm. in 250 cc. of distilled water gives the plasma protein value of 1 pint of citrated blood. The administration of the dried plasma by dissolving it in double the quantity (500 cc.) of 5 per cent dextrose solution in distilled water, so that the fluid factor is increased for cases of shock, has been tried and found satisfactory. The ideal plasma for administration is group AB (1) plasma, but the plasma of any group may be given to any patient up to 500 cc. Group AB (1) plasma can be administered in any amount. Dried plasma can be stored at room temperature. It apparently remains effective indefinitely. The authors state that their experience is not great enough to assess the full value of the method, but its antishock property appears to be comparable to that of whole blood. It seems to be ideal for use in emergencies, when no supply of blood is easily available, and in war surgery. Its effects in wound shock and postoperative shock have been equal to those following a blood transfusion. In the treatment of severe burns and scalds their results confirm the already established claims of the efficiency of plasma infusions. In view of the possibilities of extensive demands being made on the resources of those who have to treat wound shock, the authors believe it imperative that any line of treatment claiming to be of value should be fully evaluated at the earliest opportunity.

1:425-470 (March 16) 1940

- *Differential Diagnosis of Cushing's Syndrome (Basophilism) of Pituitary or Adrenal Origin. L. R. Broster.—p. 425.
Cardiac Examination in Wartime. Jane O. French, M. L. Lees and G. A. Levy.—p. 430.
Emergency Preparation of Pyrogen-Free Water. J. C. Spiller.—p. 435.
Dental Anesthesia in Children: Comparison of Vinyl Ether and Ethyl Chloride in Series of 200 Cases. J. Parkinson.—p. 428.
Vause and A. L. Robinson.—p. 432.
Inquiry into the Hour of Birth. Violet Spiller.—p. 435.

Cushing's Syndrome.—Broster compares Cushing's pituitary syndrome with the adrenogenital syndrome (adrenal virilism). There is a marked similarity in their mode of onset. In both there occur in a young woman an irregular growth of

hair of the male type and irregular menstruation. There is no absolute rule in the sequence of these two main symptoms. Either one or the other may occur first but sooner or later the two exist together during what seems to be a phase of definite endocrine instability. In Cushing's syndrome there develops a rapid and marked increase in adiposity, which becomes permanent and pathologic, followed by secondary symptoms (low sugar tolerance with or without glycosuria, raised blood pressure, erythrocythemia, cholesterolemia and coarse skin marked by striae). In adrenal virilism the weight usually remains stationary, but in some patients there is a definite increase, transitory and not excessive. None of the secondary symptoms of Cushing's syndrome appear. Instead of accumulating fat the patient becomes muscular and acquires secondary male characteristics. Between these two extremes there are many moderately heavy hairy women who cannot be labeled either with the Cushing's syndrome or with adrenal virilism. Two cases are cited which confirm the work of Crooke and Callov and further advances the role of the adrenal in basophilism. One of the two was a case of basophilism due to an adenoma of the pituitary with low urinary androgen, the other a case of basophilism due to adrenal hyperplasia with high urinary androgens reduced after the operation. The basophilic character of the growth was demonstrated by the ponceau fuchsin stain. In the case of basophilism due to adrenal cortical hyperplasia diagnosis was arrived at only by means of urinary assay for androgens. The immediate response to unilateral adrenalectomy, both clinically and biochemically, and the corroboration of the diagnosis by microscopic means, conform to the experience obtained on virilism. From the practical standpoint in the treatment of a condition which has heretofore been unsatisfactory and the study of his two cases, the author concludes that estimation of the urinary androgens affords a valuable means of making a differential diagnosis. When these are in excess it points to adrenocortical overactivity. Unilateral adrenalectomy in suitable cases offers a hope of alleviation, if not of cure.

Edinburgh Medical Journal

47:153-224 (March) 1940

- Emergency Blood Transfusion Service. C. P. Stewart.—p. 153.
Migraine and Bilioussness. D. M. Lyon.—p. 177.
Pathologic Significance of Intra-Articular Pressure. E. Freund.—p. 192.
Some Reflections on Two Recent Publications on Rickets. J. P. McGowan.—p. 204.

Journal of Mental Science, London

86:195-340 (March) 1940

- Studies of Water Metabolism in Essential Epilepsy: I. Water Balance; II. Water Content of Blood. G. D. Greville and T. S. G. Jones, with technical assistance of W. F. G. Hughes.—p. 195.
Methodology in Psychologic Medicine. E. A. Bennett.—p. 230.
Use of Creatine-Creatinine Ratio. Caecilia E. M. Pugh.—p. 240.
Millon's Reaction in Urine of Mentally Defective Patients. Caecilia E. M. Pugh.—p. 244.
*Convulsion Therapy of Psychoses. A. M. Wyllie.—p. 248.
Anomalous Cardiac Occurrences During Cardiazol Treatment of Psychoses and Psychoneuroses. R. Good.—p. 260.
Brain Respiration and Glycolysis in Cardiazol Convulsions. L. D. MacLeod and M. Reiss.—p. 276.
Influence of Endocrines on Cerebral Circulation. M. Reiss and Yolande M. L. Golla.—p. 281.
Attempt to Induce Patients Suffering from Catatonia to Active and Voluntary Movements. J. Bierer.—p. 287.

Convulsion Therapy of Psychoses.—Wyllie reports on the results of convulsion therapy in 144 cases of various psychoses. The term "recovered" was used to indicate that all symptoms have disappeared, that some degree of insight has been restored and that the patient is fit to be discharged to home conditions and take up his former activities. The term "improved" indicated that a great change for the better has occurred in the patient's behavior and habits but that symptoms may remain and that insight has not been restored completely. Some of these patients are fit to be discharged from hospital care. Of fourteen patients in whom schizophrenia had existed for less than one year, seven recovered and six were improved, while only three of sixty-eight having the disorder for more than one year recovered. Although the number of early cases in his series is small, the author feels convinced that convulsion

therapy is of definite value in the early treatment of schizophrenia. This is in harmony with the observations of most workers. Thirty-three of the sixty-eight patients were greatly improved. Of nine patients with paraphrenia of more than one year, none recovered but four improved. The results are similar to those in the chronic schizophrenic group. Patients in both the melancholic and the manic phases of manic-depressive psychosis responded immediately to the treatment. Of twenty-seven such patients treated, seventeen recovered and only one was unimproved. A happy feature was the rapid disappearance of suicidal tendencies. Of eleven patients with involutional melancholia who were ill less than two years prior to treatment, seven recovered. A considerable number of cases of involutional melancholia that would not recover spontaneously but would drift into chronicity could be saved by convulsion therapy. The average duration of illness of the patients who recovered (including one who was ill five years) was one year and two months; while the average duration of illness prior to treatment in the unrecovered group was five years and two months. Twenty-four patients in all were treated and of these eight recovered, eight were improved and eight were unimproved. The recovery rate from manic-depressive and involutional melancholias is not comparable with the spontaneous recovery rate. Only patients who did not show signs of recovery after a reasonable period were submitted to convulsive treatment. There were only two patients with psychoneurosis. The first, with obsessional neurosis, was greatly improved and the second, with hysteria, recovered. For involutional melancholia and the manic-depressive psychosis usually from two to seven convulsions were required to cut short the illness, while schizophrenic patients required a longer course. Relapses are common. The problem of how long to continue inducing convulsions and the success of the treatment rest on the physician's clinical intuition. If too few convulsions are induced, relapse is likely to follow, while continuance of the treatment after the maximal improvement has been attained subjects the patient to unnecessary risk and may be harmful.

Lancet, London

1:487-532 (March 16) 1940

- Dosage of Sulfanilamide in Prophylaxis of Wound Infections. A. T. Fuller and G. V. James.—p. 487.
Treatment of Epilepsy with Sodium Diphenyl Hydantoinate. R. Coope and R. G. R. Burrows.—p. 490.
Hypophysis and Pancreatic Insulin. H. P. Marks and F. G. Young.—p. 493.
Acute Suppurative Parotitis: Treatment by Deep X-Ray Therapy. A. J. C. Latchmore, A. A. D. La Touche and H. S. Shucksmith.—p. 497.
Subdural Hematoma. W. L. Templeton.—p. 499.

Medical Journal of Australia, Sydney

1:253-288 (Feb. 24) 1940

- Value of Femoral Osteotomy for Diseases and Injuries of Hip Joint. T. King.—p. 253.

1:289-324 (March 2) 1940

- Acute Nephritis. A. J. Collins.—p. 289.
Hemolytic Streptococcal Infections Following Childbirth and Abortion: II. Clinical Features, with Special Reference to Infections Due to Streptococci of Groups Other Than A. A. M. Hill and Hildred M. Butler.—p. 293.
Some Aspects of Head Injuries. L. Lindon.—p. 299.
The Last Illness of Sir Henry Morgan, Kt., Buccaneer and Colonial Governor, as Described by His Physician, Sir Hans Sloane, Bart.: When Resident in Jamaica, in the Years 1687 to 1688, and Some Account of the Latter's Subsequent Career. R. S. Skirving.—p. 302.

Practitioner, London

144:213-308 (March) 1940

- Trends in Gastro-Enterology Today. W. C. Alvarez.—p. 213.
Some Observations on Gastric and Duodenal Ulceration. H. MacLean.—p. 222.
Difficulty in Swallowing. R. Coope.—p. 233.
Diseases of Small Intestine. T. C. Hunt.—p. 241.
Colitis. E. R. Cullinan.—p. 248.
Diet in Warlike. V. H. Mottram.—p. 258.
Some Problems of Evacuation as Experienced in a Midland County. F. D. M. Livingstone.—p. 268.
Anaphylaxis in Serum Therapy. C. E. Kellett.—p. 276.
Note on Amebic Infection from a Life Assurance Point of View. F. G. Cawston.—p. 282.
Modern Therapeutics: IX. Use and Abuse of Aperients. R. H. Mick.—p. 285.

Gazette des Hôpitaux, Paris

113:173-188 (March 6-9) 1940

*General Review of War Surgery. G. Jeanneney.—p. 177.

War Surgery.—Jeanneney discusses problems presented by extensive war injuries of the extremities with lacerations or contusions of the muscles and vessels, with fractured bones and open articulations; by crushed extremities that are cold and inert; by the wounded with multiple lesions, and by those who are in shock and almost moribund. War surgery requires a special organization: (1) advanced surgical posts, (2) centers of treatment that are subdivided according to specialties, (3) research centers charged with the study of the biology, pathologic anatomy and treatment of war wounds and (4) a service of surgical information. The basic ideas acquired during the Spanish war coincide with the author's own in that the latent time before deep infection of the war wound permits a prophylactic excision and, if necessary, a suture of the wound; the penetrating wounds of the cranium permit preoperative transportation; penetrating chest wounds, severe hemorrhage and shock do not permit transportation; the penetrating abdominal wound should be given priority in treatment. The following points are stressed: (1) lavage of the injuries only at the beginning, in order to remove the septic debris, (2) surgical cleansing of the wound, removal of foreign bodies and flattening of sinuous depressions, (3) antitetanic and antgangrenous therapy, (4) infrequent changing of dressings, even if the wound smells bad or changing only the cotton, leaving the wound itself untouched, thus avoiding unnecessary pain for the wounded, (5) supervising carefully the temperature and the general condition and (6) giving special attention to immobilization in a good position. Immobilization by a plaster of paris cast is recommended not only for fractures but also for wounds of the soft parts. The wounds are padded with petrolatum compresses and the dressings are changed at the end of two weeks. During the Spanish war closed plaster of paris casts were used for compound fractures, but the author thinks that this procedure should be used with prudence, because it involves the danger of "enclosing the wolf in the sheepfold." The pain of the amputation stump has been known to respond to daily injections of vitamin B. Tetanus is best controlled by antitetanic vaccination, which may be combined with antidiphtheric and antityphoid vaccination. In a wounded person who has been vaccinated it will be sufficient to give one injection in order to increase the defensive power of the organism. In the nonvaccinated wounded it is necessary to inject as soon as possible 1 cc. of vaccine and forty-eight hours later 3,000 units of antitoxin. Two other injections of vaccine should be given at intervals of three weeks in order to confer an immunity of at least two years' duration. Ramon's antitetanic vaccination consists of three subcutaneous injections of toxoid (1, 2 and 2 cc.) given at intervals of three weeks, and a year later 2 cc. is injected. The same technic is employed in case of combined vaccinations with mixed vaccines. When a correctly vaccinated subject sustains a tetanogenic injury he should be given an injection of tetanic toxoid so as to augment the immunity without exposing him to possible complications from serum. If doubt exists as to whether a wounded person has been vaccinated or, if the wounds are multiple and have caused severe hemorrhages, it is best to combine the injection of toxoid with serum treatment. If tetanus is developing, serotoxoid therapy should be employed.

Progrès Médical, Paris

68:161-208 (March 2) 1940. Partial Index

*Pathologic Physiology of Frostbites: Vasomotor and Thrombotic Disease. R. Leriche and J. Kunlin.—p. 169.
Grave Acute Tetanus: Serotoxoid Therapy; Cure. J. Minet and Bertrand.—p. 178.
Dyspepsia of Tuberculous Patients. M. Loeper.—p. 182.
Cardiac Disturbances in Progressive Posthemorrhagic Anemias. G. Marchal.—p. 191.

Frostbites, a Vasomotor and Thrombotic Disease.—Leriche and Kunlin treated thirty-nine cases of frostbite. In six the hands were involved and in thirty-three the feet. The cold produces first a vasoconstriction, which after a certain period

becomes pathogenic, producing anesthesia and analgesia. When the footwear or the gloves are taken off, usually in a warm atmosphere, vasodilatation takes place. Later large blisters appear in the zone of vasodilatation. The fluid within these vesicles is at first clear but quickly becomes hemorrhagic. The nails become raised and eventually fall off. In about half of the observed cases this phenomenon extended to all toes or fingers; but on the feet it was sometimes only one toe, the great one, whereas on the hands the thumb remained intact five times out of six. In the zones in which blisters do not develop, a violet-black coloration appears; the skin becomes withered and insensitive and it is evident that dry gangrene is developing. In this phase the frozen foot presents three aspects: a tarsal zone of red edema, a metatarsal zone of yellow blisters and a peripheral zone (toes) of dark violet discoloration. Arteriography discloses obliteration in cases of frostbite. The cicatrized skin remains sensitive and painful for many years. The process is not completely terminated with the disappearance of the edema and the completion of cicatrization. The authors believe that these patients retain arteritic lesions. They observed that two patients who sustained frostbites in 1917 presented intermittent claudication and pains of the arteritic type in 1935. Anesthetic infiltration of the lumbar and stellate sympathetic was the treatment to which they resorted in all frostbite patients with edema and pain. Nearly all were immediately relieved. The infiltrations were repeated on the following two days. It was found that, if there was no necrosis or infarction, all was well in a few days. They conclude that anesthetic infiltration of the sympathetic is the best mode of treatment for frostbite and chilblains. The authors hope that this simple treatment will find wide application, since the customary treatments prevent neither the pain nor the gangrene.

Riforma Medica, Naples

56:165-200 (Feb. 10) 1940

*Blood Transfusion in Leukemia. F. Corelli and M. Gaetano.—p. 167.
Oriel's P. Substance in Urine After Surgical Operations. L. Imperati.—p. 175.

Blood Transfusion in Leukemia.—Corelli and Gaetano gave repeated blood transfusions to nine patients with chronic myeloid or lymphatic leukemia. In addition, roentgen therapy was given in the majority of the cases. The amount of blood for each transfusion varied from 200 to 300 cc. The number of transfusions, the intervals and the duration of the treatment were determined by the course of the disease. Repeated blood transfusions alone brought about improvement in the general condition of the patients. The blood picture was not modified. Both the latter and the former were improved by transfusion combined with roentgen therapy. The combined treatment gave better results than roentgen treatment alone. All the patients were followed up. Improvement was moderate. In one grave case it was transient. Two patients lived in a satisfactory condition for eight months after discontinuance of treatment. Two other patients lived in a satisfactory condition for two and four years, respectively. They developed fatal bronchopneumonia. Four patients are alive and in a satisfactory condition at the present (from eight months to four years after discontinuance of the treatment). Two of the patients resumed work. The patient living four years after discontinuance of the treatment is the only one to have an occasional blood transfusion.

Rivista di Patologia e Clin. d. Tubercolosi, Bologna

14:69-136 (Feb. 29) 1940. Partial Index

Syphilis in Tuberculous Patients. M. Valli.—p. 69.
*Digitalis in Emetic Cough in Pulmonary Tuberculosis. A. Iraci.—p. 102.

Digitalis in Cough with Vomiting in Pulmonary Tuberculosis.—Iraci believes that cough with vomiting in pulmonary tuberculosis is caused by circulatory disorders due to latent insufficiency of the heart. He administered digitalis to twenty-five patients with chronic pulmonary tuberculosis in whom various forms of therapy failed to control emetic cough. The drug was given intramuscularly during six consecutive days: three daily injections for the first two days, two daily injections for the next two days and one daily injection for the

last two days. Cough was controlled in fifteen cases. In two it recurred after a period of from one to seven months after treatment was discontinued. It was controlled by repeated administration of digitalis. The results of the treatment were mediocre in two cases and failed in eight, among which were two cases of laryngeal tuberculosis.

Brasil-Medico, Rio de Janeiro

54:1-16 (Jan. 6) 1940. Partial Index

- *Treatment of Tetanus of the Newborn. A. Ferrari.—p. 1.
Spontaneous Aneurysm of Subclavian Artery: Case. J. Adonias Aguiar and M. F. Vieira Lima.—p. 2.

Treatment of Tetanus in Newborn Infants.—According to Ferrari, failure of antitoxic serum when administered alone in the treatment of tetanus of the newborn is due to acidosis, functional and hepatic disturbances and the upsets in the acid-base balance which take place in the course of tetanus. Other treatment besides the serum is needed. The patient is kept at complete rest in a quiet room away from noises. In the first few days, in addition to the local treatment, the patient is given five enemas of 60 cc. each of a solution containing 100 Gm. of dextrose, 1 liter of boiled water and 50 Gm. of sodium bicarbonate. The enemas are given at intervals of three hours, after which the patient is permitted to rest. The local treatment consists of applying small pledgets of cotton moistened in diluted solution of sodium hypochlorite to the navel and the skin around the umbilical scar, using each swab only once, after which five drops of a 2 per cent solution of silver nitrate (freshly prepared) are dropped on the navel and the latter is dressed with dry gauze and a protective bandage. The sodium bicarbonate-dextrose enema possesses detoxicating and nutritional properties. Feeding by mouth during the acute phase of tetanus is entirely prohibited. It may cause pharyngeal, laryngeal or esophageal spasm and acute asphyxia. It is recommenced after the complete subsidence of the tetanic crises.

Revista de la Assoc. Méd. Argentina, Buenos Aires

54:1-64 (Jan. 15-30) 1940. Partial Index

- Latent Cancer of Lung with Early Clinical Symptoms of Bone Metastases and Sciatic Syndrome: Cases. M. R. Castex, E. S. Mazzei and M. S. Dreyer.—p. 1.
*Antiemetic Properties of Magnesium Sulfate. R. L. Repetto and L. E. Camponovo.—p. 35.

Antiemetic Properties of Magnesium Sulfate.—Repetto and Camponovo report satisfactory results from the administration of magnesium sulfate in the treatment of vomiting. The authors carried out experiments on dogs and observations on twelve patients in a psychopathic institution. Patients and animals were given an intramuscular injection of from 5 to 10 cc. of a 25 per cent solution of magnesium sulfate, five or ten minutes before or simultaneously with the administration of apomorphine hydrochloride. The latter was administered subcutaneously to patients in doses of 0.005 Gm. of apomorphine and to the animals in doses of from 0.001 to 0.005 Gm. of the drug by the intramuscular route. A group of patients were given ipecac instead of apomorphine in three cachets, each containing 0.5 Gm., at intervals of five minutes. The authors found that the effects of the drug are manifest in from ten to twenty minutes after its intramuscular administration. The effective dose for man varies from 5 to 10 cc. of the 25 per cent solution of magnesium sulfate in distilled water given intramuscularly. The dose can be repeated the same day, not to exceed the total daily dose of 20 cc. The treatment is indicated in all cases of spontaneous vomiting and that complicating various diseases, especially in the presence of pain, insomnia and neuromuscular excitability. Magnesium sulfate is the only substance capable of neutralizing the emetic effects of apomorphine. It acts by diminishing the excitability of the bulbar centers of vomiting. The authors did not observe a depressive effect of the drug on the respiratory centers. Theoretically an intravenous injection of calcium can be resorted to because of its antidotal action for magnesium sulfate, along with the administration of drugs capable of stimulating the centers of respiration.

Archiv für Kreislaufforschung, Dresden

6:1-108 (Jan.) 1940. Partial Index

- Cardiopneumatic Movement, Its Form, Nature and Its Behavior in Low Pressure Regions: Relation of Cardiopneumatic Movement to Arterial Pulse. E. M. Müller and H. O. Wachsmuth.—p. 1.
Experimental Changes of Quantity of Blood: Behavior of Basal Metabolism During Withdrawal of Blood. H. Brüner and K. H. Butzengeiger.—p. 34.
Criticism of Theory of Pathogenesis of Attacks of Bronchial Asthma on Basis of Disturbance in Pulmonary Circulation. M. Takino and S. Okada.—p. 47.
Significance of Pressure Amplitude and of Cardiac Reflex for Reflex Autoregulation of Circulation. E. Strauss.—p. 65.
Increase in Action Tension Curve of Ventricle. M. Decker.—p. 75.
*Pathologic Aspects of Electrocardiograms Taken During Exertion Tests and Their Clinical Significance. P. Laurentius.—p. 83.
Basal Metabolism After Exclusion of Pressure Receptors. W. Haab.—p. 97.

Significance of Changes in Electrocardiogram Taken During Exertion Tests.—Laurentius made electrocardiographic studies on 150 persons. Thirty per cent of these presented pathologic conditions of the heart (valvular lesions, previous endocarditis or hypertension) without signs of decompensation. In an additional 30 per cent the existence of subjective cardiac symptoms suggested a latent myocardial or coronary insufficiency. In this group the author included all who complained of symptoms suggestive of angina pectoris. The remaining third included persons who had palpitation, vertigo, fainting, shortness of breath on exertion, arrhythmia and decrease in the functional capacity. Eighteen of this last group had a myocarditis (complication of scarlet fever, diphtheria and tonsillitis) from six months to three years previously. This group also included patients with obesity, exophthalmic goiter, Werlhof's disease, benzene poisoning and nicotine poisoning. In cases in which anomalies were detected in the electrocardiogram taken at rest, the exertion test was omitted. In the presence of slight changes, the tolerance test was made in order to clarify the doubtful changes. The exertion test consisted in ascending a stairway of twenty steps two or three times. From three to five electrocardiograms were taken in each case. In 52 per cent the electrocardiograms taken after exertion were normal, but in the remaining 48 per cent disturbances were noticeable in the formation of the impulse and in the conduction. Changes in the final deflection, indicative of myocardial impairment, were observable in 28 per cent. It was thus demonstrated that in the absence of decompensation and with a normal electrocardiographic record taken at rest the exertion electrocardiogram may reveal pathologic changes. For an exact evaluation of the circulatory organs, several methods of examination must be employed. The exertion electrocardiogram is only one of several methods by which latent cardiac defects can be brought to light. It is not a universal and independent functional test of the heart.

Beiträge zur klinischen Chirurgie, Berlin

170:513-664 (Dec. 31) 1939

- *Modifications in Secretions of Gastric Juice in Gallstone Diseases Before and After Extirpation of Gallbladder. L. von Murányi.—p. 513.
Syphilitic Soft Tumors of Mammary Gland (Gumma Mammæ). K. Hollösi.—p. 540.
Radical Operations of Carcinomas of Papilla. W. Kafka.—p. 547.
Local Anesthesia in Major Surgical Cases. F. Osswald.—p. 560.

Modifications in Secretion of Gastric Juice in Gallstone Diseases.—Von Murányi employed Einhorn's fractionated breakfast test and duodenal tube in sixty-four cases of gallstone disease. There were eleven men and fifty-three women between the ages of 20 and 50 years who had been examined preoperatively, kept on a postoperative dietary regimen for at least a year and reexamined. The sixty-four cases fell into four groups: simple gallstones twenty-six (40.6 per cent), with occlusion of bile ducts twenty-one (32.8 per cent), with icterus five (7.8 per cent) and with acute cholecystitis twelve (18.8 per cent). The tests had the threefold objective of determining (1) whether characteristic acidity curves could be obtained, permitting prompt and sure diagnosis of gallstone involvement, (2) whether the majority of gallstone cases were characterized by achylia or hypo-acidity and (3) whether gallbladder extirpations, modified gastric secretions inducing dyspepsia. The results diverge widely from assumptions held at present. In only seven

cases of the twelve belonging to the acute cholecystitis group did the acidity curves indicate approximately uniform results. Great individual differences were found. The author summarizes this portion of his investigation by saying that no secretion curves of gastric acidity peculiarly significant for gallstone diseases and useful for differential diagnosis could be attained. Achylia or hypo-acidity was found in only eighteen cases (28.2 per cent). Analyzed according to their group membership, five (7.8 per cent) of the twenty-one cases were complicated with occlusion of the bile ducts, one (8.3 per cent) of twelve cases was complicated with icterus and eight (21.7 per cent) of the twenty-six uncomplicated gallstone cases manifested hypo-acidity. His observations, therefore, do not sustain the assumption that gallstone disease, complicated or uncomplicated, develops subacidity in 66 per cent of the cases. Gallbladder extirpation not only had no adverse effect on gastric secretion but stimulated a tendency to return to normal levels in almost all cases. Achylia or hypo-acidity observed preoperatively in 28.2 per cent of the cases was present after the operation in 15.6 per cent. Hyperacidity was reduced from an incidence of 29.6 per cent to that of 12.5 per cent, and normal values, found in 42.2 per cent, were increased to 71.9 per cent. The author comments on the difference of results obtained by the Einhorn fractionated test from those of the Boas-Ewald single test. Neither sex nor age (limited to age 50) was found to affect the chemical modifications of gastric secretion. He believes that postoperative freedom from dyspepsia is determined by the strict observance of a dietary regimen for at least a year.

Deutsches Archiv für klinische Medizin, Berlin

185:273-392 (Nov. 28) 1939. Partial Index

- Blood Picture Changes in Lymphogranulomatosis. A. Gebauer.—p. 273.
Heart Injuries in Carbon Monoxide Poisoning. G. W. Parade and H. Franke.—p. 294.
Significance of Mixed Infection of Tuberculosis Cavities with Streptococci. W. Übelacker.—p. 303.
Acute Isolated Lymphogranulomatosis of Spleen: Case. A. Gebauer.—p. 339.
Insulins with Retarded Action in Persons with Normal Metabolism. K. Mellinshoff and G. Voges.—p. 345.
Cases of Chronic Nephrosis and Pseudonephrosis at the Volhard Clinic (1918 to 1938). Erika Oertel.—p. 357.

Chronic Nephrosis and Pseudonephrosis.—Oertel made a comparative analysis of fifty-nine cases of chronic nephrosis and thirty-one cases of pseudonephrosis. She points out that chronic nephrosis occurs as a result of a primary increase of albumin transmissibility of the glomeruli caused by toxic action, while pseudonephrosis occurs as a result of a secondary or indirect increase of albumin transmissibility of the glomeruli caused by circulatory disturbance of the glomeruli. In attempting differential diagnosis, one should carefully analyze the history and the course of the disease. The significance of blood pressure behavior is also stressed. The differential diagnosis is made increasingly difficult at times by overlapping symptoms and the apparent similarity of pathologic-anatomic and microscopic observations. Pseudonephrosis is, as a rule, incurable, while true cases of chronic nephrosis often are curable.

Deutsche medizinische Wochenschrift, Leipzig

66:113-140 (Feb. 2) 1940

- Serotherapy of Acute Pneumonia. G. Wiele and H. Ibsing.—p. 113.
Course of Lobar Pneumonia in Adults. Frobenius.—p. 118.
Pneumonia Complicating Influenza. H. Dennig.—p. 122.
Treatment of Bronchial Asthma with Minimal Doses of Copper. G. Schimert.—p. 124.
Prepreglacial Conditions. A. Mahlo.—p. 126.
Circulatory Insufficiency. R. Klotz.—p. 128.
Early Bacteriologic Diagnosis of Abdominal Typhoid. F. Lommel.—p. 130.

Small Doses of Copper in Bronchial Asthma.—The fact that heavy metals administered in small doses increase the activity of the reticulo-endothelial system and thereby influence the allergic condition suggested to Schimert the rationale of treating bronchial asthma with small doses of copper. He chose copper because its oral administration has been found helpful in spasmodic conditions of the smooth muscles, particularly the bronchial muscles. In the majority of cases the cutaneous administration of 10 micrograms of colloidal copper twice weekly proved most effective after the initial reaction had sub-

sided. In some the weekly dose had to be reduced to 1 or 2 micrograms and in others it had to be increased to from 50 to 100 micrograms. The treatment was begun with a subcutaneous injection of 0.5 cc. (containing 5 micrograms). If no severe reactions followed (in the form of greater frequency and intensity of attacks), the same dose was given three days later by intravenous injection. If the attacks were intensified, the subcutaneous injection was resumed. It was possible, as a rule, to establish the intravenous mode of injection at the sixth or eighth injection. At this time it was also possible to increase the dose to 1 cc. The initial exacerbation should not be regarded as a reason for abandoning the treatment, for after twelve to twenty days improvement sets in as a rule. The treatment is continued for from six weeks to six months. It is advisable to continue the injections for some time after the cessation of the attacks. In some cases the injections must be continued at ten day intervals in order to maintain the patient free from symptoms. The author reports observations on fifty patients, twenty-one of whom were completely freed from attacks, seventeen were greatly improved, five had relapses and seven were not improved.

Monatsschrift für Kinderheilkunde, Berlin

81:281-398 (Feb. 8) 1940. Partial Index

- Anaphylaxis and Hepatic Function. J. Recht and F. Geriöczy.—p. 281.
Theoretical and Practical Remarks on Fluid Treatment in Conditions of Exsiccation. E. Kerpel-Fronius.—p. 294.
Studies on Vaccination: Vaccination Against Smallpox as Allergic Reaction. D. Gyüre.—p. 305.
Transfusion of Large Quantities of Plasma in Toxicosis of Infants. F. H. Dost.—p. 312.
Feeding of Prematurely Born Infants. W. Catel.—p. 334.
Calory Requirements of Prematurely Born Infants. H. Knauer.—p. 372.

Transfusion of Plasma in Toxicosis of Infants.

According to Dost, surprisingly favorable results were obtained by Bessau and Uhse with transfusion of plasma in infants with toxicosis due to dyspepsia. Dost applied this treatment in eleven cases during the subtoxic or toxic stage. In severe diarrhea without toxic disturbances he considered it unnecessary to depart from the customary treatment. No children after the first year of life were included. He was unable to corroborate the favorable results reported by Bessau and Uhse. The loss of water was rapidly compensated and the remissions were sudden but as a rule of only short duration. Cure was obtained in only two of the eleven cases. The favorable results were overshadowed by complications. In two instances transfusion was followed by circulatory impairment, apnea and death. In another case death followed after 28 cc. of plasma per kilogram of body weight had been given, although the total dose is 50 cc. per kilogram of weight. Intestinal peristalsis increased during or after the transfusion and watery stools were eliminated. Apparently the organism tries to rid itself of part of the excess of fluid by intestinal elimination. The signs of severe collapse may be due to the excess load imposed on the circulation. In four cases which terminated in death, signs of endocarditis simplex were observed which the author ascribes to the plasma transfusion.

Münchener medizinische Wochenschrift, Munich

87:57-84 (Jan. 19) 1940. Partial Index

- Results of Roentgen Therapy in Malignant Tumors of Supramaxillary Region with Special Consideration of Their Ophthalmologic Involvement. H. T. Schreus and F. K. Leydhecker.—p. 62.
Disease-Producing Viruses. P. Heilmann.—p. 64.
Treatment of Mixed Type Pneumonias with Combined Quinine Urethane and P-Aminophenylsulfonamide (Azosulfamide). H. Leonhardt.—p. 66.
An X-Ray Screen Apparatus for Clinical Use. K. L. Schmidt.—p. 68.

Treatment of Mixed Type Pneumonia with Combined Quinine Urethane and P-Aminophenylsulfonamide (Azosulfamide).—Leonhardt reports the successful use of combined quinine urethane and p-aminophenylsulfonamide in fifty cases of pneumonia during the course of four months. Forty were mixed type cases, mostly bronchopneumonia. The remaining ten were lobar pneumonia, three of which belonged to a mixed type. Five cases are reported. In the three bronchopneumonic cases (ages 22 to 80) streptococci and pneumococci were found, respectively, of types I, II and III. Consolidation was detected

either in one or in both inferior lobes. The combination drug was administered intramuscularly daily in doses of 1 or 2 cc. for from three to four days with significant therapeutic response in terms of fever subsidence and resolution of consolidation. One of the patients, aged 38, with lobar pneumonia, after unavailing preceding medication with other drugs, contracted a septic mixed type pneumonia which yielded promptly to the combination. The author's procedure with adults consisted of intramuscular administration of 2 cc. once or twice daily according to the severity of the case (half dose to children). Intramuscular treatment was followed, after defervescence, with oral doses of the same drug in tablet form. In no case were intolerance or untoward sequelae observed even when the drug was given for seventeen days and totaled 68 cc. for a patient aged 69. In bronchopneumonia therapeutic effects were surprisingly rapid, a change for the better being noted within twenty-four to forty hours, together with a rapid resolution of local consolidation. The drug was applied successfully in postoperative cases as a prophylactic measure. Recurrences due to premature discontinuance were quickly checked by restoring medication. The same favorable results were obtained in lobar pneumonia. Neither postpneumonic empyemas nor complications attributable to the use of the drug were observed. The two deaths noted by the author in lobar pneumonia were due either to pulmonary embolism or to circulatory insufficiency that occurred after defervescence had already set in. The author thinks that the combination of the two drugs used in these cases can be successfully applied to all types of pneumonia.

Zeitschrift f. d. ges. experimentelle Medizin, Berlin

107:1-160 (Dec. 9) 1939. Partial Index

- Chemical Constitution and Therapeutic Action of Various Calcium Compounds. A. Lassner.—p. 1.
 *Treatment of Hemorrhagic Diatheses: Clinical Significance of Landis' Method. L. Armentano.—p. 9.
 *Experimental Studies on Behavior of Anesthesia at Different Times During the Twenty-four Hour Period. Y. Edlund and H. Holmgren.—p. 26.
 Investigations on Rest Nitrogen of Blood and Its Chief Components. F. Larizza.—p. 53.
 Determination of Cutaneous Temperatures on Men Over 60 Years of Age. F. König.—p. 98.
 Thyroid and Nutrition in Regions with Few Goiters and with Many Goiters. W. Bergfeld.—p. 106.

Treatment of Hemorrhagic Diatheses.—Armentano's studies failed to corroborate observations of other investigators that vitamin C is effective in various hemorrhagic disorders. He employed Landis' method in order to detect cases of increased capillary permeability. Cases with increased permeability were treated with vitamin C or citrin, the flavone fraction of lemon juice. Vitamin C proved ineffective in various chronic hemorrhagic diatheses, such as hemophilia, thrombocytopenia and vascular purpura. In symptomatic hemorrhages the treatment with ascorbic acid was successful only when a considerable deficiency of vitamin C existed simultaneously. Such a deficit of saturation could be demonstrated in eight cases: one of hemophilia, two of vascular purpura and five of essential thrombopenia. The Landis method is applicable in clinical examination for the permeability of the capillaries. In serious inflammations, effusion of plasma fluid as well as of protein can be observed. The same is true of cases of vascular purpura and nephroses. Citrin, the flavone fraction of lemon juice, arrests hemorrhages, increases the capillary resistance and prevents the effusion of protein from the capillaries only in vascular purpura but not in the other types of hemorrhagic diathesis. In hemophilia, thrombopenic purpura and pancytopenia, citrin proved to be entirely ineffective. The number of thrombocytes and the coagulation time are not influenced either by citrin or by vitamin C.

Anesthesia at Different Times During Twenty-Four Hour Period.—Edlund and Holmgren maintain that the liver has an important part in the detoxication of anesthetics. Reports in the literature indicate that this process of detoxication can be inhibited by starvation, cachexia and adrenalectomy. Attempts have been made to modify the chemical processes of detoxication by the administration of dextrose, glycogen, insulin and thyroxine. It has been demonstrated that the glycogen content of the liver varies rhythmically in the course of the twenty-four hour period, the

reached during the late night and early morning hours and minimum about 11 a. m. A number of male white mice were anesthetized with avertin with amylene hydrate at 6 a. m. a number at 11 a. m. The authors found that the animals anesthetized at 6 a. m. showed a greater resistance than the anesthetized at 11 a. m. The second series of experiments were made with evipal soluble. Here again the mice subject to anesthesia at 6 a. m. displayed a greater resistance than those subjected to it at 11 a. m. The authors investigated the effect of starvation and of insulin plus dextrose. Observations on animals treated with insulin and dextrose indicated that such animals had a greater resistance to the anesthesia than animals which were starved before anesthesia. The impression was gained that a certain parallelism exists between the time required for the anesthetic to take effect and the glycogen content of the liver. The authors conclude that a certain parallelism exists between the function of the liver and the rapidity, depth and length of the anesthesia.

Vrachebnoe Delo, Kharkov

21:451-530 (Nos. 7-8) 1939. Partial Index

- *Lactic Acid Therapy of Cardiac Patients. E. Ya. Sterkin, P. I. Lomakin, N. A. Sulimovskaya, A. T. Lomen and E. M. Ylitskaya.—p. 451.
 Combination of Symptoms of Decompensation in Cardiovascular Disease M. V. Burgsdorf.—p. 457.

Lactic Acid Therapy of Cardiac Patients.—According to Sterkin and his co-workers there exist sufficient experimental data to suggest that lactic acid, more so than dextrose acts as a source of energy for the heart muscle and that it is capable of increasing the work capacity of the myocardium. The possibility of treating cardiac patients by increasing the blood lactic acid concentration presented itself. The authors have demonstrated that this can be accomplished by oral administration of a solution of invert sugar, a mixture of various quantities of dextrose and fructose. The method has the advantage over the method of work hyperlactacidemia in that it does not place additional burden on the heart. Another advantage is that invert sugar is converted to the D form of lactic acid necessary for the human organism. Studies of twenty-five patients with decompensated hearts demonstrated that the lactic acid blood content at rest and on a fast stomach is frequently increased above normal. After administration of invert sugar a further increase in concentration takes place, so that sixty minutes after ingestion the lactic acid blood level exceeds the original level by from 50 to 60 per cent. The consequent lowering of the lactic acid blood level is, as a rule, retarded so that the level two hours after ingestion is still above the original. These observations, the authors believe, suggest the administration of invert sugar as a source of lactic acid in the treatment of cardiac patients.

Nordisk Medicin, Gothenburg

5:165-198 (Feb. 3) 1940. Partial Index

Hospitalstidende

- *Peculiar Case of Nephrosis. K. O. Høegh.—p. 169.
 Lesions of Recurrent Nerve in Thyroidectomy in Exophthalmic Goiter P. Winfeld.—p. 174.
 Creatinuria and Cholesterolemia in Castrates. K. Brychner-Mortensen.—p. 180.

Peculiar Case of Nephrosis.—A man aged 25, with active pulmonary tuberculosis and chronic tuberculosis of the bones contracted nephrosis immediately after thoracoplasty done about six months before death. Høegh ascribes the nephrosis to the effect of toxins from the tuberculous process. He says that the case differs from our known cases of tuberculous nephrosis in that there was an extremely high albuminuria together with marked edema. Tuberculous nephrosis is considered incurable, as it is maintained by the primary disorder, but in this instance the albuminuria disappeared after about four months, and somewhat later, without change in the serum proteins or the estimated colloid-osmotic pressure, the edema disappeared, presumably because of variations in the hydrostatic pressure. Necropsy showed no hyaline or amyloid degeneration of the kidneys, but there was pronounced albuminous degeneration of

